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The Impacts of Recurring Supportive Interactions on Couples' Psychological, Relational, and Health Outcomes in the Context of Rheumatic Diseases

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The Impacts of Recurring Supportive Interactions on Couples' Psychological, Relational, and Health Outcomes in the Context of Rheumatic Diseases

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The Impacts of Recurring Supportive Interactions on Couples' Psychological, Relational, and Health Outcomes in the Context of Rheumatic Diseases

Kristen LeBlanc Farris, PhD

The University of Texas at Austin, 2017

Supervisor: Erin E. Donovan

Supportive communication challenges have been well-documented by previous research in the context of chronic illness management. However, few communication studies have examined the dyadic nature of coping with chronic illnesses through social support. Furthermore, scholarship in this area has often privileged social support as prosocial and has been largely atheoretical in nature (Vangelisti, 2009). Thus, the study set out to address these gaps in the literature and was guided by the theory of illness trajectories (Corbin & Strauss, 1985; 1988), face and politeness theories (Brown & Levinson, 1987; Goffman, 1967) and the stress adaptation model (Lazarus & Folkman, 1984).

The purpose of the study was to examine the transactional nature of supportive interactions in the context of rheumatic disorders via testing of two structural models. The path analysis explored associations between frequency of support seeking and

quality of provision along with both members' subsequent psychosocial outcomes. Couples (n = 229) individually completed an online survey and were compensated $10 for their participation.

Results indicated patients' support seeking (as perceived by partners) was negatively associated with quality of support provision (as perceived by patients) and positively associated with partners' caregiver burden and relational satisfaction. Caregiver burden was negatively related to partners' subjective physical health and positively related to their psychological distress. Finally, quality of support provision was positively associated with patients' relational satisfaction and subjective physical health. The variables in the first structural model accounted for 18% of patients' perceptions of their partners' quality of support provision and 38% of patients' relational satisfaction, while the variables in the second structural model accounted for 56% of quality of support provision, 53% of partners' caregiver burden, 29% of partners' psychological distress, and 21% of partners' relational satisfaction.

Findings from the study lend credibility to enveloping the construct of social support in the theory of illness trajectories as a form of "work" and suggest that partners view support provision as an arduous task in the context of chronic illness management. The results also provide a more nuanced understanding of the costs and rewards of supportive interactions for both patients and their romantic partners.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

The American College of Rheumatology estimates an approximate 50 million Americans have been diagnosed with at least one of the 100 varied conditions classified as rheumatic disorders—such as fibromyalgia, lupus, and rheumatoid arthritis. According to the National Institute of Arthritis and Musculoskeletal and Skin Diseases (2014), rheumatic diseases are "characterized by inflammation… and loss of function of one or more connecting or supporting structures of the body." In addition to the experience of chronic "pain, stiffness, and swelling" (National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2014), patients diagnosed with these conditions often experience comorbidity, or the presence of other, diverse symptoms including restless sleeping, memory loss, issues with cognitive processing (Jahan, Nanji, Qidwai, & Qasim, 2012), and accompanying distress and depression as a result of managing these symptoms (Phillips & Stuifbergen, 2010). Moreover, in many cases, patients experience "setbacks, flare-ups, complications, impaired functions, and disabilities" (Charmaz, 1993, p. 283).

Helmick and colleagues (2008) reported that medical costs for patients diagnosed with arthritis or rheumatic disorders (AORD) accounted for $127.8 billion, which is nearly 25% more than the medical costs associated with treating cancer. Additionally, the National Health Interview Survey in 2012 reported that U.S. adults diagnosed with a form of AORD missed a total of 172.1 million days of work between 2010 and 2012, which accounted for approximately one-third of the total work days lost reported by

adults diagnosed with any medical condition (Blackwell, Lucas, & Clark, 2014). Because there are currently no cures available to patients diagnosed with AORD (Jahan et al., 2012), it is important to examine the ways in which patients and their families cope with the various challenges experienced in managing these life-long illnesses.

In addition to the management of the physiological symptoms associated with their diagnosis, patients often report psychosocial challenges as well (Manne & Zautra, 1990). For instance, rheumatic diseases are often considered particularly invisible or "hidden" (Higgins, 2000; Matthews & Harrington, 2000) as they are often difficult to discern and diagnose (Cunningham & Jillings, 2006), and AORD patients also report that others question if these illnesses are legitimate or "real" (Barker, 2002). Thus, patients have reported feeling invalidated by many in their social network and even by some physicians directing their care (Åsbring & Närvänen, 2002). Furthermore, individuals diagnosed with these disorders often feel stigmatized by their illness and experience emotional distress and marginalization as a result (Åsbring & Närvänen, 2002).

As Horan, Martin, Smith, Schoo, Eidsness, and Johnson (2009) reported, individuals suffering from chronic and invisible illnesses often experience uncertainty due to their health status and worry about their quality of life after diagnosis. These individuals may also experience difficulty due to financial strain and changes in their daily routine (Horan et al., 2009). Furthermore, the symptoms experienced by patients who have been diagnosed with a form of AORD often prevent them from performing normal tasks in their personal and professional lives and as such, patients often report

losses in their sense of self after the onset of these symptoms (Schoofs, Bambini, Ronning, Bielak, & Woehl, 2004). In addition, individuals diagnosed with conditions such as fibromyalgia, lupus, and rheumatoid arthritis often report challenges with achieving pain relief, gaining understanding from others in their social network, and experience difficulty in coping with issues such as a loss in autonomy and freedom (Söderberg, Lundman, & Norberg,1999). As noted in these studies above, patients often experience psychosocial difficulties which arise as a result of the physical manifestation of their symptoms.

In an effort to manage these stressors, individuals diagnosed with these rheumatic disorders often look to their social network to provide comfort and support. More specifically, as patients living with rheumatic diseases deal with "an ongoing process rather than [the] management of a single episode," (Jahan et al., 2012, p. 192), it stands to reason that patients would seek social support more often than healthy individuals or individuals diagnosed with non-chronic illnesses. In fact, previous research asserts that individuals managing a chronic illness may need help from their support network in "living with their conditions [as it] often entails sustained, coordinated efforts to handle myriad demands that are physical, psychological, relational, and financial in nature over an extended period of time" (Donovan-Kicken, Tollison, & Goins, 2012, p. 642). Furthermore, previous scholarship has demonstrated that romantic partners specifically play a large role in providing support and aiding patients in their coping with the challenges accompanying these rheumatic disorders (Manne & Zautra, 1990). Therefore,

examining the supportive interactions between patients living with a rheumatic disorder and their significant others is an important avenue to explore.

The current study will examine the complex and dyadic nature of supportive communication between patients and their romantic partners in the context of rheumatic disorders and will be guided by the theory of illness trajectories (Corbin & Strauss, 1985; 1988), face and politeness theories (Brown & Levinson, 1987; Goffman, 1967) and the stress adaptation model (Lazarus & Folkman, 1984). The manuscript that follows describes the test of a structural model examining the impact of frequency of support seeking on quality of support provision between couples managing one partner's rheumatic disorder. Questions remain regarding how support providers respond as their ill loved ones continue to need help throughout the course of their illness. Therefore, this study will explore whether these support providers become overwhelmed or burdened by the frequency with which they are prompted to provide social support, or if instead they provide better quality support in response to these recurring support seeking attempts. Consequently, the current study also aims to investigate the relationship between the patient's frequency of support seeking on the support provider's burden, and both partners' subsequent psychological, relational and health outcomes**.**

Scholars from varied disciplines seem to be interested in how social support between close, interpersonal partners may facilitate effective coping and adjustment to chronic illnesses generally (DiMatteo, 2004; Doherty & MacGeorge, 2012; Reich, Olmsted, & van Puymbroeck, 2006) and rheumatic disorders specifically (Manne &

Zautra, 1990; Revenson, Schiaffino, Majerovitz, & Gibofsky, 1991). However, most of these studies have been atheoretical in nature and have emphasized both the prosocial nature of social support and the perspective of the support provider (MacGeorge, Feng, & Burleson, 2011; Vangelisti, 2009). Therefore, the study described in this manuscript aims to address three important limitations in the extant literature. First, by situating this research problem in the theory of illness trajectories, the findings from the current study are anticipated to help researchers improve theorizing about the complex issues surrounding supportive interactions between couples managing a chronic and invisible illness. Specifically, the manuscript will assert that support provision in the context of managing these long-term illnesses is demanding on the romantic partners of those diagnosed with a form of AORD. Second, the proposed project will also place more emphasis on the dyadic nature of supportive communication than has been accomplished previously. As such, a third goal is to investigate the psychological, physiological, and relational outcomes from the perspectives of both members of the dyad in response to the frequency of support seeking enacted and quality of support provision received.

The following sections of the manuscript will begin with a substantive review of the extant literature surrounding supportive communication in the context of chronic invisible illnesses, and rheumatic disorders specifically. Chapter Two will explore various conceptualizations of and important findings about supportive communication and will provide an explanation of the major tenets of the conceptual frameworks used to guide the current study. Chapter Two will end with a discussion of the study's

hypotheses and proposed structural model. Chapter Three will include a discussion of the methodology used to conduct the current study including relevant procedures, information about the couples who agreed to participate in the study, and an explanation of instruments used to measure the variables of interest. The data analysis techniques, results and final models will be presented in Chapter Four, and the implications and limitations of these findings will be discussed in Chapter Five.

Chapter 2: Literature Review and Rationale

Social support surrounding health issues has received much attention in the communication literature and related disciplines (Burleson, 1982; 2009; Burleson & MacGeorge, 2002; Chu, Saucier, & Hafner, 2010; High & Dillard, 2012; Vangelisti, 2009). Many scholars from communication, psychology, sociology, and the health professions are interested in how social support between close, interpersonal partners may facilitate effective coping and adjustment to chronic illnesses (DiMatteo, 2004; Doherty & MacGeorge, 2012; Reich et al., 2006) including rheumatic disorders (Manne & Zautra, 1990; Revenson et al., 1991). More broadly, social support has been linked to various positive outcomes including "decreased emotional stress, enhanced coping, protected health, and improved personal relationships" (Burleson, 2009, p. 22). As demonstrated by the extant literature in this area, the value in examining social support stems from its strongly established link to various health outcomes, the theoretical implications of effective and ineffective forms of social support, and the ethical implications of enacting prosocial behaviors in interpersonal relationships (MacGeorge et al., 2011). The purpose of the current study was to extend the literature on social support to include an investigation between individuals living with a specific chronic, invisible illness (rheumatic disorder) and their relational partners.

CONCEPTUALIZATION OF SOCIAL SUPPORT

Social support has generally been conceptualized in the literature based on three perspectives: sociological, psychological, and communicative (MacGeorge et al., 2011;

Vangelisti, 2009). In the sections that follow, I will discuss how scholars from each of these disciplines have conceptualized and operationalized social support. Additionally, each section will include a discussion of pertinent findings related to social support.

Sociological Perspective

The sociological perspective emphasizes the importance of social networks and integration in communities. Uchino, Cacioppo, and Kiecolt-Glaser (1996) labeled this structural support, and scholars who study social support from this standpoint generally use the number or type of connections with interpersonal others as the operationalization for studying this construct. Most of the studies examining social support from this perspective have argued that individuals with greater social integration—that is, a higher number of diverse ties—are likely to experience greater levels of psychological and physiological well-being (Berkman & Syme, 1979; Cohen & Wills, 1985; MacGeorge et al., 2011). This has been demonstrated in the context of managing chronic illnesses as well (Franks, Stephens, Rook, Franklin, Keteyian, & Artinian, 2006; Manne & Zautra, 1990; Pakenham, Dadds, & Terry, 1994; Scharloo et al., 1998; Swindells, Mohr, & Berman, 1999). However, conceptualizing and operationalizing social support as network connections has drawbacks in that it does not account for quality of those relationships or the actual supportive behaviors those relational partners enact (Vangelisti, 2009).

Psychological Perspective

Researchers studying supportive behaviors from a psychological perspective, on the other hand, highlight the importance of the perceived availability of support. Thus, these researchers generally operationalize social support based on either the type or frequency of support people perceive to be accessible to them. For instance, Cutrona and Suhr (1992) operationalized social support based on five types of supportive behaviors: informational, tangible, emotional, esteem, and network support. Informational and tangible forms of support are considered action-facilitating support behaviors as the goal is to minimize the problem at hand. Informational support "includes advice, factual input, and feedback on actions" (Cutrona & Suhr, 1992, p. 155), while tangible support involves providing a partner with services or goods to help with a specific stressor. In the context of rheumatic disorders, patients may seek informational support by asking their partners for advice about treatment options, whereas tangible support would be activated if a patient asked their partner to pick up their medication or accompany them to a doctor's visit. Emotional, esteem, and network forms of support are considered nurturant support behaviors as the goal is to comfort and care for a partner without directly attempting to minimize the problem at hand. Emotional support involves "expressions of caring, empathy, and sympathy" (Cutrona & Suhr, 1992, p. 155), whereas esteem support messages focus on a partner's efficacy, ability, or value. For instance, patients may want their partner to express sympathy when they are experiencing a flare-up of physical symptoms (emotional support). They may also need for their partners to reaffirm their

identity and tell them that they are still worthwhile after their diagnosis (esteem support). Finally, network support, similar to the sociological perspective's conceptualization of social support, involves social integration into a community or group of people. Therefore, patients may need for their partners to help connect them to experientially similar others (Thoits, 2011) or those who have similar diagnoses.

Although it is valuable to understand the types of supportive behaviors individuals enact in their relationships, a limitation of this conceptualization is that it minimizes the perceptions of the quality of the supportive behaviors provided in response to stressful situations. In other words, although this perspective considers that social support may be provided and received in different ways, it fails to account for how helpful or unhelpful these messages may be to support recipients.

Communication Perspective

Scholars studying social support from a communicative perspective emphasize the enacted support via verbal and nonverbal messages. Thus, researchers from this standpoint generally operationalize social support based on the quality of the supportive communication by studying message features and by asking relational partners to evaluate the actual support messages which were provided or received in a particular stressful context (Doherty & MacGeorge, 2012; Donovan, LeFebvre, Tardif, Brown, & Love, 2014).

One definition provided by communication scholars identifies supportive communication as "verbal and nonverbal behavior produced with the intention of

providing assistance to others perceived of needing that aid" (MacGeorge et al., 2011, p. 317). Although this definition recognizes the importance of message production in enacted support, the definition fails to fully acknowledge the dyadic nature of supportive interactions. Consequently, the authors do not discuss the complex ways in which supportive interactions influence outcomes of the support provider, support recipient, and their relationship as a whole. Burleson (1982) has also conceptualized social support from a narrower perspective in which he defined it as person-centeredness, or a reflection of "an awareness of and adaptation to the subjective, affective, and relational aspects of communicative contexts" (p. 305). In contrast to MacGeorge and colleagues' (2011) definition, this conceptualization emphasizes the importance of social support to relational and emotional outcomes. However, this definition could encompass other prosocial communicative behaviors such as affection, which are distinct from social support.

The current manuscript utilizes Albrecht, Burleson, and Goldsmith's (1994) definition of *supportive communication* which follows: "verbal and nonverbal behavior that influences how providers and recipients view themselves, their situations, the other, and their relationship and is the principal process through which individuals coordinate their actions in support-seeking and support-giving encounters" (p. 421). This conceptual definition firmly situates social support as a communicative phenomenon which is central to the process of managing a stressor and also suggests that supportive communication involves strategic message production in a mutually influential relationship. Further, the

definition asserts that supportive communication is a dyadic process through which both partners may experience changes in their cognitive appraisals of the stressor, their emotions about the stressor and toward one another, and their perceptions of their relational quality. Finally, and most importantly, this definition does not privilege social support as a prosocial form of communication. Thus, it acknowledges that although support may be well-intentioned, the message may not be perceived as helpful by the recipient. For instance, previous research has demonstrated that patients frequently report that their loved ones minimized their illness experience or, alternatively, were "overly protective" of them (Lehman & Hemphill, 1990).

SOCIAL SUPPORT IN THE CONTEXT OF CHRONIC, INVISIBLE ILLNESS

Scholarship regarding social support in the specific context of chronic illnesses has predominately focused on the goals of identifying the types of supportive interactions patients and partners perceive to be effective (Brashers, 2004; Doherty & MacGeorge, 2012; Goldsmith, Brashers, Kosenko, & O'Keefe, 2007) and identifying relationships between supportive interactions and various psychological, physiological, and relational outcomes (Holahan, Moos, Holahan, & Brennan, 1995; Kim, Han, Shaw, McTavish, & Gustafson, 2010; Manne & Glassman, 2000; Manne, Pape, Taylor, & Dougherty, 1999; Norton & Manne, 2007; Pinquart & Duberstein, 2010; Swindells et al., 1999; Wright & Aquilino, 1998). For instance, research in this area has consistently reported that patients who experience greater quality and more frequent social support are more likely to have decreased psychological distress (Holahan et al., 1995; Manne & Glassman, 2000),

greater emotional well-being (Kim et al., 2010), and increases in positive moods (Manne et al., 1999). These ill individuals are also more likely to experience better physiological health outcomes in response to support from close, relational others such as decreased mortality rates (Pinquart & Duberstein, 2010) and greater immune efficiency (Swindells, et al., 1999) as well as better relational outcomes including marital quality (Norton & Manne, 2007) and satisfaction (Wright & Aquilino, 1998).

CRITICAL GAPS IN THE LITERATURE

Although scholarship from the communication, psychology, sociology, and health professions disciplines has contributed to our understanding of social support processes in the context of chronic illnesses, the current literature does not provide a sufficient overview of the unique communicative interactions between chronically and invisibly ill individuals and their social networks (Horan et al., 2009; Kundrat & Nussbam, 2003). Further, few studies have examined the dyadic nature of coping with chronic illnesses via social support. As social support is inherently a dyadic process (Albrecht et al., 1994), researchers should challenge themselves to employ study designs that allow the scientific community to more fully investigate the mutually influential nature of supportive communication. Perhaps more importantly, as supportive interactions are transactional in nature, it stands to reason that the recurring support seeking attempts from patients would influence their partners' support provision. Therefore, the current study extends the current literature to include a dyadic examination of patients' recurring support seeking

attempts and its impact on their partners' quality of support provision and experience of caregiver burden in return.

Moreover, previous research has privileged the prosocial nature of social support despite several scholars identifying this as problematic (MacGeorge et al., 2011; Vangelisti, 2009; Wittenberg-Lyles, Washington, Demiris, Oliver, & Shaunfield, 2013) and several studies demonstrating the negative outcomes associated with social support (Manne, Sherman, Ross, Ostroff, Heyman, & Fox, 2004; Stephens, Martire, Cremeans-Smith, Druley, & Wojno, 2006). Although romantic partners may provide support to their chronically ill loved ones for prosocial reasons, the study that follows will be based on the logic that support provision in response to recurring support seeking attempts is arduous and may influence the quality of support the partners are able to offer.

Additionally, the scholarly conversations about social support in the context of chronic and invisible illnesses have been rather atheoretical in nature and have emphasized the perspective of the support recipient (MacGeorge et al., 2011; Vangelisti, 2009). Thus, the current study will aim to theorize about the nature of social support seeking and provision in the context of managing a rheumatic disorder and will emphasize the relational, psychological, and physiological outcomes of both the support recipient and the support provider in hopes of providing a more holistic view of the impact of social support between couples.

Together, these gaps in the literature are particularly problematic in that they seem to simplify the complex nature of social support processes in the context of chronic

illnesses (Vangelisti, 2009). Doherty and MacGeorge (2012) allude to these issues in a study about a chronic mental health disorder: "if being an effective support provider to someone…means consistently providing many of the forms of support identified in this study, the responsibility could be significant, even daunting" (p. 372). Although the authors acknowledge support provision as a challenging interpersonal issue, their findings do not contribute to our understanding of how support providers attempt to manage these responsibilities and how the recurring support seeking attempts on the part of their ill partner may create deleterious outcomes or consequences for the support providers. Further, little communication research has explored how these partner outcomes may influence patient outcomes and vice versa. Therefore, the study described in this manuscript aims to address these limitations in the extant literature.

THEORETICAL FRAMEWORK

The current study will be guided by the theory of illness trajectories (Corbin & Strauss, 1985; 1993) which centers on the ways in which patients and their loved ones manage chronic illnesses through the construct of *work*, which refers to "a set of tasks performed by an individual or a couple, alone or in conjunction with others, to carry out a plan of action designed to manage one or more aspects of the illness and the lives of ill people and their partners" (Corbin & Strauss, 1988, p. 9). In other words, the theorists were concerned with the actual tasks patients and their loved ones attempted to accomplish while managing a chronic illness and the varied experiences that accompany the illness cycle. The theory of illness trajectories describes that work also encompasses

the process, context, and challenges involved in managing chronic illnesses (Corbin & Strauss, 1985). The theorists use the term "work" to emphasize the "conceptual overlap with work processes that occur in organizations, with stakeholders making arrangements for carrying out tasks, evaluating performance, and accommodating to changes in the course of events" (Donovan-Kicken, et al., 2012, p. 642).

In their original manuscript, Corbin and Strauss (1985) conducted interviews with 60 couples and identified three lines of work that were pertinent to coping with and managing chronic illnesses: illness work, biographical work, and everyday life work. *Illness work* is characterized by tasks related to managing symptoms and preventing crises associated with a specific illness from occurring (Corbin & Strauss, 1985). For instance, illness work for individuals diagnosed with rheumatic disorders may involve taking multiple forms of medication and managing pain and stiffness symptoms through seeking massages and acupuncture, engaging in exercise, and so on.

Moreover, when an individual is diagnosed with a chronic illness, such as fibromyalgia, rheumatoid arthritis or lupus, they often experience a disruption to their identity (Bury, 1982). *Biographical work* refers to the tasks an individual engages in to make sense of this disruption and to understand how this may impact their futures (Corbin & Strauss, 1985). For example, as the pain and stiffness experienced by patients diagnosed with rheumatic disorders is particularly debilitating, these individuals often must "come to terms with" losses in both their professional and personal lives (Schoofs et al., 2004). In fact, many patients diagnosed with a form of AORD report job disruptions

such as missed days of work (Jetha, Badley, Beaton, Fortin, Shiff, & Gignac, 2015) and "career[s] that once provided a sense of identity may change" as the illness experience may prevent patients from working in the careers they chose prior to the onset of symptoms (American College of Rheumatology, 2017b). Further, according to the American College of Rheumatology (2017b), "habits and hobbies that bring joy and relieve stress are sometimes abandoned" when managing these rheumatic diseases, and patients must learn to cope with these losses through biographical work.

Finally, *everyday life work* is characterized by mundane, daily tasks unrelated to the illness including running errands and managing the household by cooking, cleaning, and dealing with the household finances (Corbin & Strauss, 1985). Although these tasks may be unrelated to the illness itself, the onset of rheumatic disease symptoms such as chronic, widespread pain may prevent patients from engaging in this everyday life work. Therefore, patients may rely on their relational partners to take a larger role in accomplishing these tasks for the family after initial diagnosis and during flare-ups.

In a more recent study, Donovan-Kicken and colleagues (2012) interviewed 40 cancer patients and identified a fourth line of work which aided in the management of the illness experience: communication work. *Communication work* refers to the management of information surrounding the illness including message planning and actual disclosure about the illness to others. In other words, patients and their loved ones decide when and how to disclose the diagnosis to others and to update their loved ones about the prognosis and treatment options. As rheumatic diseases do not currently have a cure (National

Institute of Arthritis and Musculoskeletal and Skin Diseases, 2014; Jahan, et al., 2012), patients and their families may engage in decision-making conversations throughout the lifespan of the illness regarding the various treatment options available for managing symptoms. Furthermore, patients may rely on their partners to aid them in conveying information regarding their prognosis and treatment options to others in their social network.

CONCEPTUALIZING SOCIAL SUPPORT AS A FORM OF WORK

Although the literature does not specifically conceptualize social support as a form of work, I assert that when patients seek help from their relational partners in performing these lines of work, this process is a form of communication, specifically support seeking. In fact, Corbin and Strauss (1985; 1988) acknowledged that patients often ask their romantic partners to share in the enacting of these forms of work, and this parallels Albrecht and colleagues' (1994) definition of social support in which the authors argue that individuals and their loved ones coordinate their actions to manage these stressful situations.

Further, the lines of work identified in the previous literature by Corbin and Strauss (1985) and Donovan-Kicken and colleagues (2012) parallel the typology of support originally identified by Cutrona and Suhr (1992). For example, when patients diagnosed with a rheumatic condition ask for help from their significant others in taking them to their physician appointments, picking up their medication, or taking over household chores, they are enacting tangible support or as Corbin and Strauss (1985)

describe, illness and everyday life work. Likewise, patients may ask their loved ones to help them manage biographical work or coming to terms with their illness through emotional, network and esteem support. For instance, patients may ask their romantic partners to connect them to others who are experiencing similar challenges or to comfort them and reassure them that they are still worthwhile as biographical work deals with changes in identity after diagnosis. Lastly, patients may also need help in enacting communication work through seeking information regarding their illness, which Cutrona and Suhr (1992) identify as informational support.

Finally, Corbin and Strauss (1985) selected the term "work" to demonstrate that managing chronic illnesses is effortful. I assert that the provision of social support, too, can be an arduous process that changes with the demands of the illness. Thus, this manuscript will be guided by the theory of illness trajectories and will explore the construct of social support as enveloped within the construct of "work" that patients and romantic partners enact during the management of chronic and invisible illnesses, such as rheumatic disorders.

HYPOTHESES AND PROPOSED MODEL

Social Support as an Imposition

Face theory may be a useful framework in providing evidence that social support provision is effortful from a social interaction perspective. Erving Goffman (1967) originally defined *face* as "the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact" (p. 5). Face

management is an attempt to create a positive perception during interactions with others. Brown and Levinson's (1987) extension of this concept into politeness theory labeled this the "positive face," while the "negative face" is characterized by autonomy and a need "to have one's actions be unimpeded by others" (McGlone & Giles, 2011, p. 211). Brown and Levinson (1987) also identified the idea of *facework*, or the idea that individuals try to manage their own face, while also maintaining their partners' face. For instance, politeness theory recognizes that individuals cannot always avoid face threatening interactions, and suggests that we attempt to enact politeness through strategic message production which address both positive and negative face concerns (McGlone & Giles, 2011).

Previous research in the area of social support has primarily used face management to examine advice interactions and has conceptualized social support as a face-threatening act (Feng & Burleson, 2008; Goldsmith, 1994; MacGeorge, Clark, & Gillihan, 2002). For instance, individuals who were given unsolicited advice viewed it to be a violation of their negative face as it may have been perceived to be invasive (Goldsmith, 2000; Goldsmith & Fitch, 1997). However, individuals who are actually seeking advice from a relational partner might view this interaction to be a threat to their positive face as it may alter the positive perception their partners hold of them as being competent (Goldsmith, 2000; Goldsmith & Fitch, 1997). For instance, individuals diagnosed with a rheumatic disease may not ask their loved ones for help in managing their illness if they feel this will create a negative perception of them. Patients may be

worried their loved ones will perceive them as dependent or unable to accomplish tasks on their own, which would be a threat to the patients' positive face. What is more, patients may also acknowledge that these requests might impinge on their partners' autonomy, thereby threatening their partners' negative face. Thus, research in this area suggests that individuals are managing both their own and their partner's positive and negative face concerns during supportive interactions and provides evidence of the usefulness of this particular framework in the context of supportive communication and the management of communication work.

In line with the frameworks of face management and politeness work, individuals who seek recurring social support from a relational partner may encroach on that partner's negative face (Brown & Levinson, 1987; Johnson, Roloff, & Riffee, 2004; Kim, Wilson, Anastasiou, Aleman, Oetzel, & Lee, 2009; Wilson, Aleman, & Leatham, 1998). As the support seeking continues to be enacted in a relationship, the support provider may feel that this is interfering in their daily activities and may sense a loss in autonomy. For instance, patients who have been diagnosed with rheumatic disorders typically report difficulty in completing household tasks such as vacuuming or picking up groceries due to the experience of debilitating pain (American College of Rheumatology, 2017b). As such, many patients will ask their live-in relational partners to help them in accomplishing these tasks. According to politeness theory, this interference from the support seeking partner may result in a less supportive message from the support provider as the partner may feel overwhelmed by being asked to continue to complete these

household tasks for their ill loved one. On the other hand, if the support provider does not enact supportive messages in return to these recurring support seeking attempts, this could impact the positive face of the provider in which the patient may view their relational partner more negatively based on the lack of support or reduced quality of support in response (Brown & Levinson, 1987; Wilson et al., 1998). In sum, there are several compelling theoretical reasons to conceptualize the processes of social support between partners coping with rheumatic disorders as communicative dilemmas characterized by several potential threats to face.

In fact, researchers have found in laboratory discussions about distressing situations that support seekers, when experiencing greater levels of stress, were more likely to impede on their romantic partners' autonomy via support seeking messages (Niczo & Burgoon, 2008). In the chronic illness context, previous research provides evidence that patients diagnosed with fibromyalgia, a form of rheumatic disease, receive low levels of social support from relational partners (Schoofs et al., 2004). This may be due to the effortful nature of providing support throughout the trajectory of the illness. Other research also suggests that the quality of interactions between partners may decrease as a result of recurring support seeking attempts. For instance, Stroebe, Zech, Stroebe, and Abakoumkin (2005) found that relational partners tend to be less supportive in instances when a support seeker continues to talk about a recurring issue. Further, seminal research in social psychology has demonstrated that individuals who experience chronic depressive symptoms are more likely to elicit negative verbal and nonverbal

responses from their relational partners (Gotlib & Robinson, 1982; Gurtman, 1986; Howes & Hokanson, 1979). These findings seem to support what Coyne (1976) referred to as the rejection phenomenon in which relational partners of chronically depressed individuals tend to experience anxiety and depressive symptoms themselves as a result of communicating with their partners. Further, Coyne (1976) found that these relational partners, as a result of experiencing these negative emotions, tend to reject and devalue their depressed loved ones. These findings are useful to the current study as they provide evidence that individuals, such as those managing a chronic rheumatic disorder, may experience declines in the quality of support provision from their romantic partners as these individuals are tasked with enacting recurring social support.

In light of these findings and the assumptions provided by politeness and face theories, it stands to reason that recurring support seeking from a relational partner would negatively impact support enactment. Therefore, the first hypothesis is posited:

H1: Partners' perceptions of patients' frequency of support seeking will be negatively associated with patients' perceptions of their partners' quality of support provision.

Adaptability in Social Support

Although extant research has provided evidence that increased support seeking attempts may lead to decreased quality of support provision, the literature has also been conflicting in this area. Thus, the following section will explore a competing view of hypothesis one. In order to effectively study the relationship between the recurring

support seeking and effectiveness of support provision, one must consider the work on matching models in the social support literature. These models assert that support seekers will perceive the provision of support to be effective in so much as the comforting messages received "match" the specific stressor experienced by the patient (Cohen & McKay, 1984; Cutrona, 1990). Previous research in this area suggests that individuals seek support in order to obtain information, seek comfort, increase self-esteem, feel a sense of belonging, and acquire tangible gains (Cutrona & Suhr, 1994; Xu & Burleson, 2001). In line with this thinking, relational partners should identify which support needs are most relevant to the current problem and provide that particular type of support. Moreover, these models propose that individuals providing social support to a relational partner attempt to adapt their communication based on the seeker's needs and that they may improve over time (Cutrona, 1990).

Adaptation refers to communicative behaviors between relational partners which are "non-random, patterned, or synchronized in both timing and form" (Bernieri & Rosenthal, 1991, p. 403), and usually take the form of mirroring or compensating for each other's behaviors (Burgoon, Stern, & Dillman, 1995). White (2008) argued that "adaptation in interaction forms the foundation of our relationships with one another and that adaptation is communicative" (p. 193). Thus, support providers may learn to adapt to their relational partners over time and may be able to provide better quality support as their knowledge of what their partner needs or wants increases. For instance, a patient may need support in illness-management work such as picking up prescriptions or in

helping to relieve pain through massaging or in communicative work such as information-seeking about the disorder or keeping other social network members informed about the prognosis and treatment options. The theory of illness trajectories (Corbin & Strauss, 1985) suggests that partners may find the stress of providing support to their chronically ill loved ones challenging, but that the work can become routinized and less burdensome over time.

Likewise, the stress adaptation model (Lazarus & Folkman, 1984) suggests that individuals adapt to stressors over time and make subsequent changes in their coping behaviors based on this adaptation. Further, the authors assert that these partners may become used to the support provision responsibilities and become habituated to these tasks as a result of reappraisal of the stressor. In other words, romantic partners of chronically ill patients may perceive their roles as support providers as a stress-inducing experience to which they may become accustomed over time. Based on previous interactions with their relational partner, support providers may alter or adjust their communication based on their increased understanding of the needs of the support seeker and on their habituation to the stressor—which could, then, make the support provision more manageable and more effective. Thus, their quality of support provision should increase as they no longer feel stressed by the patients' seeking of support from them.

An intervention study conducted by Scott, Halford, and Ward (2004) supports this assertion. The results of this study suggest that training couples on supportive communication skills positively influenced both partners' coping strategies, sexual

adjustment, and the enactment of couples' social support during an observed communication task, while decreasing psychological distress at both six and 12-month follow-up assessments (Scott et al., 2004). In other words, partners of the ill individuals were able to alter their supportive communication in an effort to provide higher quality support to their loved one. Taken together, these findings and tenets posited by the matching and stress adaptation models discussed above contradict the first hypothesis as individuals who are being asked to provide social support for a chronically and invisibly ill partner may learn how to adapt supportive messages to their partner over time. Therefore, a second, competing hypothesis is put forth:

> *H2: Partners' perceptions of patients' frequency of support seeking will be positively associated with patients' perceptions of their partners' quality of support provision.*

Impacts on Support Provider (Partner Effects)

One construct which may help to explain the relationship between frequency of social support seeking and quality of support provision is *caregiver burden*, which has been defined as a physical, emotional and/or financial toll of providing care (George & Gwyther, 1986). Caregiver burden has primarily been investigated in medical journals and other health-related fields such as counseling (George & Gwyther, 1986; Grunfeld et al., 2004; Tang, Liu, Tsai, Wang, Chang, & Liu, 2008). As Manne and Zautra (1990) asserted, romantic partners of individuals diagnosed with rheumatic disorders are likely to experience caregiver burden as they are managing "problems includ[ing]…providing

care to the sick partner, disruption in social, sexual, and recreational activities caused by the partner's disability, and dealing with the partner's emotional distress associated with the illness" (p. 328). However, few studies in the communication discipline have identified caregiver burden as a variable of interest (Blood, Simpson, Dineen, Kauffman, & Raimondi, 1994; Venetis, Magsamen-Conrad, Checton, & Greene, 2013), and many of these studies have highlighted the importance of the caregiver as a recipient of the support (Haley, Levine, Brown, & Bartolucci, 1987; Lee & Sprague, 2002; Wittenberg-Lyles et al., 2013). In other words, these studies suggest that the more support these caregivers receive from others in their support network, the less they will experience caregiver burden (Harper & Lund, 1990). I have been unable to identify any studies that specifically examine the impact of patients' recurring support seeking attempts (as perceived by their romantic partner) on the caregiver's burden. Therefore, one of the aims of the current study is to test the relationship between these variables.

Although limited data exist specifically examining the association between support seeking and caregiver burden, studies focused on family caregiving may provide some reasoning for this relationship. For instance, Harper and Lund (1990) reported that caregivers of dementia patients experienced increased burden when they spent more hours caring for their ill loved one. This suggests that the more partners are needed to provide help to the patient, the more likely they are to experience the emotional and physical toll of caring. Relatedly, Pinquart and Sörensen (2003) conducted a meta-analysis of 288 studies and found a small, positive relationship between the duration of

providing care (in hours per week) to a loved one and caregiver burden. The authors also reported a small, positive relationship between the number of tasks accomplished by the caregiver and the experience of burden (Pinquart & Sörensen, 2003). Thus, caregiver burden is expected to increase when partners are needed to care for their loved ones over a longer period of time and when they have increased responsibility in terms of the amount of tasks their partner needs help completing. Zahid and Ohaeri (2010) also report that when family caregivers of schizophrenia patients attempted to meet the needs of their diagnosed loved ones, they were more likely to report increased levels of caregiver burden. In other words, when the caregivers recognized that their loved ones had unmet needs, they perceived the caregiving experience to be costlier. Taken together, these results suggest that caregiving for loved ones with chronic illnesses is a challenging experience which may be influenced by the frequency of support provision needed by the ill partner.

Further, Wittenberg-Lyles and colleagues (2013) asserted that caregivers of hospice patients often experience social support burden, which is characterized by "impediments or negative costs associated with seeking, maintaining, and receiving social support" (p. 902). The authors found that these caregivers experienced burden when they needed to ask for help among their social networks in caring for their loved one. They also proposed that a fruitful next avenue to explore is how the support seeking of the diagnosed individual might prompt the experience of caregiver burden among the support providers. Venetis and colleagues (2013) also asserted that ongoing

communication about a chronic health condition may be burdensome: "it is possible that the patient continues to discuss the certain [illness] topics to the degree that it is cumbersome for the partner" (p. 95). Although these studies lend some credibility to the association between support seeking and caregiver burden, given the lack of definitive empirical evidence in this area, the following research question has been posed:

RQ1: Will partners' perceptions of patients' frequency of support seeking be associated with their perceived caregiver burden?

Caregiver Burden and Psychological Distress

Another important avenue to explore concerns the psychological, physiological, and relational implications of the experience of caregiver burden. The sections that follow will examine these relationships of interest. Previous research suggests that caregiver burden may negatively impact the caregiving partner's psychological distress. For instance, seminal research conducted by Anthony-Bergstone, Zarit, and Gatz (1988) found that women caregivers of dementia patients experienced feelings of anxiety and hostility. These feelings were positively related to the women's distress, such that women who experienced greater anxiety and hostility also experienced increased psychological distress. Kiecolt-Glaser, Dura, Speicher, Trask, and Glaser (1991) also examined psychological consequences of long-term caregiving in the context of dementia and reported that spousal caregivers were more likely to be diagnosed with depression-related disorders than demographically matched non-caregivers. In fact, the authors found that 30% of the caregivers of dementia patients were diagnosed with a depressive

disorder compared to only 1% of the control or non-caregiving group. More recent research by Calhoun, Beckham, and Bosworth (2002) also found a positive relationship between burden and psychological distress in caregiving partners of individuals diagnosed with chronic PTSD, such that increased caregiver burden led to increased experiences of distress. These results were exacerbated when the partner diagnosed with PTSD was more violent and experienced more severe symptoms (Calhoun et al., 2002). Finally, in a study about caregiving in the context of terminal cancer, Grunfeld and colleagues (2004) asserted that "although patient's physical and emotional factors predict caregiver distress, perceived burden is the strongest predictor of caregiver anxiety and depression" (p. 1798). Taken together, these results suggest that the experience of caregiver burden is positively related to psychological distress in a variety of chronic illness contexts. Thus, the following hypothesis was developed to investigate this relationship in couples managing a rheumatic disorder:

> *H3: Partners' perceived caregiver burden will be positively related to their psychological distress.*

Caregiver Burden and Relational Quality

In addition to affecting their psychological distress, extant research has also provided evidence that caregiver burden may impact romantic partners' perceptions of relational quality. For instance, Steadman, Tremont, and Davis (2007) found a negative relationship between caregiver burden and relational satisfaction in the context of dementia. Their findings suggest that partners who experienced increased burden as a

result of providing care to their loved ones were more likely to also report being dissatisfied in their marriages. Additionally, caregivers who reported lower levels of relational satisfaction were less likely to engage in effective communication and problem-solving behaviors. Another study conducted by Lawrence, Tennstedt, and Assmann (1998) found similar results among a representative sample of family caregivers who were caring for a loved one who was diagnosed with some form of a disability. The findings from this study indicate negative relationships between relational quality and caregiver overload, depression, and role captivity, which is a feeling of being "trapped in the…caregiver role" (Pearlin et al., 1990). In other words, family caregivers who reported higher relational quality with their disabled loved one were less likely to experience caregiver overload, depression, and role captivity (Lawrence et al., 1998). The authors argue that the relational quality might protect caregivers from experiencing the typical stressors associated with providing care, yet this relationship may also be bi-directional in nature, such that the caregiver burden may negatively influence the relational quality as well. Thus, the following hypotheses were posed to test the associations between caregiver burden and relational quality:

H4a: Partners' perceived caregiver burden will be negatively related to their relational satisfaction.

H4b: Partners' perceived caregiver burden will be negatively related to their relational commitment.

Caregiver Burden and Subjective Physical Health

Finally, the current literature provides evidence of the impact of caregiver burden on the support provider's physiological health outcomes. For instance, Schulz and Beach (1999) reported that elderly caregivers who experienced emotional strain were at greater risk for mortality than their noncaregiver counterparts at a four-year follow-up. Kiecolt-Glaser and colleagues (1991) also found that caregivers were more likely to experience declines in cellular immunity and increases in upper respiratory infections when compared to demographically similar non-caregivers. This relationship has been well-documented in the literature; a meta-analysis of 84 studies also reported that caregivers were statistically more likely to experience decreased physical health, measured by both subjective and objective measures, when compared to individuals who were not enacting caregiving responsibilities (Pinquart & Sörensen, 2003). The authors suggest this is due to the stress that accompanies providing care to a loved one. Other scholars have noted that this occurs because caregivers are less likely to engage in preventative health measures (Schulz & Martire, 2004). The following hypothesis is posed to reflect this relationship between caregiver burden and subjective physiological health:

H5: Partners' perceived caregiver burden will be negatively related to their subjective health.

Support Seeking and Caregiver Burden

Overall, the findings above suggest that providing support can be challenging, especially in chronic illness contexts in which romantic partners' autonomy continues to be impeded by recurring support seeking attempts. However, more research is needed to

examine various indirect associations of interest. For instance, it is important to investigate the predictors associated with patients' perceptions of better quality social support, while simultaneously acknowledging that the expectation to provide this high-quality support on a recurring basis is difficult and may lead to burden and lower quality support, in return. There is some evidence to support this assertion. Afifi, Afifi, and Merrill (2014) interviewed community members after a natural disaster and found that these social network members reported difficulties in providing social support to other community members when they were experiencing diminished interpersonal resources themselves. Thus, it is reasonable to assume that when support providers are experiencing burden due to how frequently they perceive their chronically ill loved ones to be asking for support, the support provided is likely to be of lower quality in return. However, there is a paucity of literature examining the relationship between frequency of support seeking, caregiver burden, and quality of support provision. The current study will aim to fill this gap in the literature through an examination of the following research question:

> *RQ2: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' perceptions of their partners' quality of support provision via partners' perceived caregiver burden?*

Indirect Associations for Partner Effects

Further, the literature does not currently provide evidence of an indirect association between frequency of support seeking, caregiver burden, and partners'

pscyhological, relational, and physiological outcomes. Although the literature has established that the more caregivers experience burden, the more likely they are to experience increased psychological distress and decreased relational quality and physiological health, less is known about how the frequency of support seeking influences this sequence of events. Therefore, the following research questions were developed to explore these associations more explicitly:

RQ3: Will partners' perceptions of patients' frequency of support seeking indirectly affect their psychological distress be via their perceived caregiver burden?

RQ4a: Will partners' perceptions of patients' frequency of support seeking indirectly affect their relational satisfaction via their perceived caregiver burden?

RQ4b: Will partners' perceptions of patients' frequency of support seeking indirectly affect their relational commitment via their perceived caregiver burden?

RQ5: Will partners' perceptions of patients' frequency of support seeking indirectly affect their subjective health via their perceived caregiver burden?

Impacts on the Ill Individual (Patient Effects)

As the current study aims to examine the dyadic processes involved in supportive interactions, the following section will emphasize outcomes of the patient (or the ill partner). Thus, the experience of the partner's caregiver burden is important to explore in this context as this may influence the support provider's capability to provide quality

support to their ill loved one. For instance, extant research has examined the associations between communication behaviors and caregiver burden in the context of chronic illness. More specifically, Fried, Bradley, O'Leary, and Byers (2005) asserted that partners' and patients' unmet communication concerns were a contributing factor to the partners' experience of caregiver burden. Additionally, in the context of patient-therapist relationships, the experience of burnout, a construct similar to caregiver burden, was positively associated with the experience of anxiety and negatively associated with communication competence (Babin, Palazzolo, & Rivera, 2012). These results suggest that the experience of caregiving, and more specifically, the "toll of providing care" may contribute to a decline in positive communicative behaviors (George & Gwyther, 1986). However, as the current literature does not provide enough evidence regarding the impacts of caregiver burden on the quality of support provision specifically, the following research question was developed to explore this relationship:

RQ6: How, if at all, is partners' perceived caregiver burden related to patients' perceptions of their partners' quality of support provision?

Quality of Support and Psychological Distress

To further examine these associations, it is important to explore how patients' perceptions of their partners' quality of support provision will influence their psychological, relational, and physiological outcomes. Consequently, the sections that follow will examine these relationships of interest. Previous research on the buffering hypothesis (Cohen & Wills, 1985) may help to provide some guidance regarding these

associations. The buffering hypothesis asserts that social support acts as a safeguard for stressful events and as such, will attenuate psychological distress. This hypothesis has been examined in the literature in a variety of contexts. For instance, many studies indicate that patients diagnosed with chronic illnesses are likely to experience psychological distress or depressive symptoms as a result. In a study examining social support in the context of chronic cardiac illness, patients who reported greater, positive support from social network members had lower depressive symptoms one year later (Holahan, et al., 1995). This supports the buffering hypothesis as the results suggest that receiving quality social support from relational partners may help protect or decrease the experience of psychological distress among patients.

Other researchers (i.e., Manne & Glassman, 2000) have also examined the relationship between unsupportive communication and psychological distress. Their findings suggest that husbands' unsupportive behaviors during a communication task led to their wives' decreased coping efficacy and increased avoidance, which in turn, led to greater experience of psychological distress. In a related study, Manne, Ostroff, Winkel, Grana, and Fox (2005) found that a partner's report of unsupportive interactions was indirectly associated with psychological distress via the patient's perception of their spouse's same unsupportive behavior. This finding is important in that it establishes that patients are attuned to these unsupportive behaviors and that this is problematic in terms of their psychosocial well-being. Similar results have been reported previously in the context of rheumatoid arthritis, one form of rheumatic disease (Revenson & Majerovitz,

1990). Thus, the results of these studies suggest that the quality of support received by the patient will influence their experience of psychological distress. The hypothesis below reflects this relationship:

H6: Patients' perceptions of their partners' quality of support provision will be negatively related to their psychological distress.

Quality of Support and Relational Quality

As managing chronic illnesses often changes relationship dynamics between diagnosed partners and their significant others (Corbin & Strauss, 1988), it is important to explore how the quality of support provision received by the ill individuals may influence their perceptions of their relationship quality. Extant literature in supportive communication suggests that support seekers who view their partners' support as helpful and empathic during a laboratory discussion are more likely to report higher levels of interaction and communciation satisfaction (Niczo & Burgoon, 2008). Previous research also suggests that this communication quality, specifically occurring during a supportive or problem-solving task, influences partners' perceptions of their relational quality (Julien, Chartrand, Simard, Bouthililer, & Bégin, 2003), such that increased support leads to more positive perceptions of the relationship. Further, previous research has consistently demonstrated a positive relationship between social support and relational satisfaction, such that individuals reporting higher levels of relationship satisfaction also tend to receive and perceive more supportive behaviors from their partners (Carels & Baucom, 1999; Cutrona, 1996; Dehle, Larsen, & Landers, 2001; Fincham, Garnier,

Gano-Phillips, & Osborne, 1995; Lawrence, et al., 2008; Overall, Fletcher, & Simpson, 2010). Many authors have found positive associations between quality of support provision –operationalized via support adequacy – and relational quality among romantic partners (Dehle, et al., 2001; Lawrence et al., 2008; Overall et al., 2010). Similar findings have been reported in the context of chronic illness management. For instance, Frazier, Tix, and Barnett (2003) found that supportive behaviors were related to marital satisfaction among kidney transplant patients and their partners. The following hypothesis aims to extend this literature to examine these relationships in the context of managing a rheumatic disorder.

H7a: Patients' perceptions of their partners' quality of support provision will be positively related to their relational satisfaction.

H7b: Patients' perceptions of their partners' quality of support provision will be positively related to their relational commitment.

Quality of Support and Subjective Physical Health

Finally, the current study aims to examine the influence of increased support seeking on the patient's subjective physical health via perceived quality of support provision. Previous research in various chronic and invisible illness contexts provide support for this relationship. For instance, when individuals diagnosed with HIV reported greater levels of emotional support and social integration, they also reported higher CD4 counts, a biomarker of immune efficiency and decelerated progression of the virus (AIDS Info, 2015). Moreover, Pinquart and Duberstein (2010) conducted a meta-

analysis of 87 studies examining the impact of social support (operationalized by enacted support and social integration) on mortality in the context of cancer. The results suggest receipt of social support, greater social integration, and marital status were related to greater decreases in mortality rates for cancer patients. DiMatteo's (2004) findings suggest that tangible support in which partners help facilitate medical adherence are more likely to result in improved physiological outcomes. In other words, the findings from this meta-analysis indicate that medical adherence is another mechanism through which social support impacts health outcomes. Taken together, the results assert a positive relationship between quality of support and an ill individual's physiological health. Thus, the following hypothesis reflects this relationship.

H7: Patients' perceptions of their partners' quality of support provision will be positively related to their subjective physiological health.

Indirect Associations for Patient Effects

Although the existing literature suggests that an ill individual's perceptions of their partner's quality of support is related to their perceptions of relational quality and psychological and physical health, there are little data on the impact on the frequency of support seeking in these relationships. Thus, the following research questions are posed to examine the dyadic effects of the support providers' perceptions of the patients' frequency of support seeking on these relational, psychological, and physiological health outcomes via the perceived quality of partners' support provision.

RQ7: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' psychological distress via patients' perceptions of their partners' quality of support provision?

RQ8a: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' relational satisfaction via patients' perceptions of their partners' quality of support provision?

RQ8b: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' relational commitment via patients' perceptions of their partners' quality of support provision?

RQ9: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' subjective health through their perceptions of partners' quality of support provision?

RESEARCH ADDRESSING CRITICAL GAPS IN THE LITERATURE

The current project will aim to fill the critical gaps in the literature discussed previously by examining a model (see Figure 2.1) that will test dyadic influences of recurring support seeking on quality of support provision and various patient and partner psychosocial and relational outcomes. Three theoretical frameworks will be used to guide the proposed structural model – the theory of illness trajectories (Corbin & Strauss, 1985; 1988), face and politeness theories (Goffman, 1967) and the stress adaptation model (Lazarus & Folkman, 1984).

To the author's knowledge, this is the first piece to examine Corbin and Strauss' (1985; 1988) construct of work to explore social support in the management of chronic, invisible illnesses. This is important for communication scholars and others interested in studying the complex nature of supportive interactions between spouses throughout the trajectory of the chronic illness experience. Specifically, using the theory of illness trajectories and the construct of work to frame the current study challenges the current biases in the literature that social support is prosocial (Vangelisti, 2009; Wittenberg-Lyles, et al., 2013), and instead asserts that support provision can be effortful and arduous. Further, these findings will also place more emphasis on the dyadic nature of supportive interactions, and as such, will include psychological, physiological, and relational outcomes from the perspectives of both members of the dyad. The model investigated in the current manuscript will also provide more information regarding the adaptive nature of couples in response to these recurring support seeking attempts. Thus, the results of this study will be useful in future theorizing about, and will provide a more comprehensive and complex perspective on, supportive communication between significant others who are managing one partner's rheumatic disorder. Moreover, these findings will be useful to both scholars and practitioners who are interested in helping couples learn to cope with the demands of managing these illnesses over time. Finally, this manuscript will serve as the foundation for a line of future research which will focus on the various predictors of adaptive and maladaptive coping in response to these challenges.

Figure 2.1 summarizes the eight hypotheses and nine research questions which will be used to test the relationships of interest in the current study. These hypotheses and research questions are listed below. Direct associations between the variables of interest are represented by solid arrows, while the indirect associations are represented by dotted arrows. Please see Table 2.1 for a review of the hypotheses and research questions being explored in the current study.

Table 2.1

Paths in the Hypothesized Structural Model

H/RQ
H1: Partners' perceptions of patients' frequency of support seeking will be negatively associated with patients' perceptions of their partners' quality of social support provision.
H2: Partners' perceptions of patients' frequency of support seeking will be positively associated with patients' perceptions of their partners' quality of social support provision.
RQ1: Will partners' perceptions of patients' frequency of support seeking be associated with their perceived caregiver burden?
H3: Partners' perceived caregiver burden will be positively related to their psychological distress.
H4a: Partners' perceived caregiver burden will be negatively related to their relational satisfaction.
H4b: Partners' perceived caregiver burden will be negatively related to their relational commitment.
H5: Partners' perceived caregiver burden will be negatively related to their subjective health.
RQ2: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' perceptions of their partners' quality of support provision via partners' perceived caregiver burden?
RQ3: Will partners' perceptions of patients' frequency of support seeking indirectly affect their psychological distress via their perceived caregiver burden?
RQ4a: Will partners' perceptions of patients' frequency of support seeking indirectly affect their relational satisfaction via their perceived caregiver burden?
RQ4b: Will partners' perceptions of patients' frequency of support seeking indirectly affect their relational commitment via their perceived caregiver burden?
RQ5: Will partners' perceptions of patients' frequency of support seeking indirectly affect their subjective health via their perceived caregiver burden?

Table 2.1

Paths in the Hypothesized Structural Model (continued)

H/RQ
H6: Patients' perceptions of their partners' quality of support provision will be negatively related to their psychological distress.
H7a: Patients' perceptions of their partners' quality of support provision will be negatively related to their relational satisfaction.
H7b: Patients' perceptions of their partners' quality of support provision will be negatively related to their relational commitment.
H8: Patients' perceptions of their partners' quality of support provision will be negatively related to their subjective health.
RQ6: How, if at all, is partners' perceived caregiver burden related to patients' perceptions of their partners' quality of support provision?
RQ7: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' psychological distress via patients' perceptions of their partners' quality of support provision?
RQ8a: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' relational satisfaction via patients' perceptions of their partners' quality of support provision?
RQ8b: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' relational commitment via patients' perceptions of their partners' quality of support provision?
RQ9: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' subjective physical health via patients' perceptions of their partners' quality of support provision?

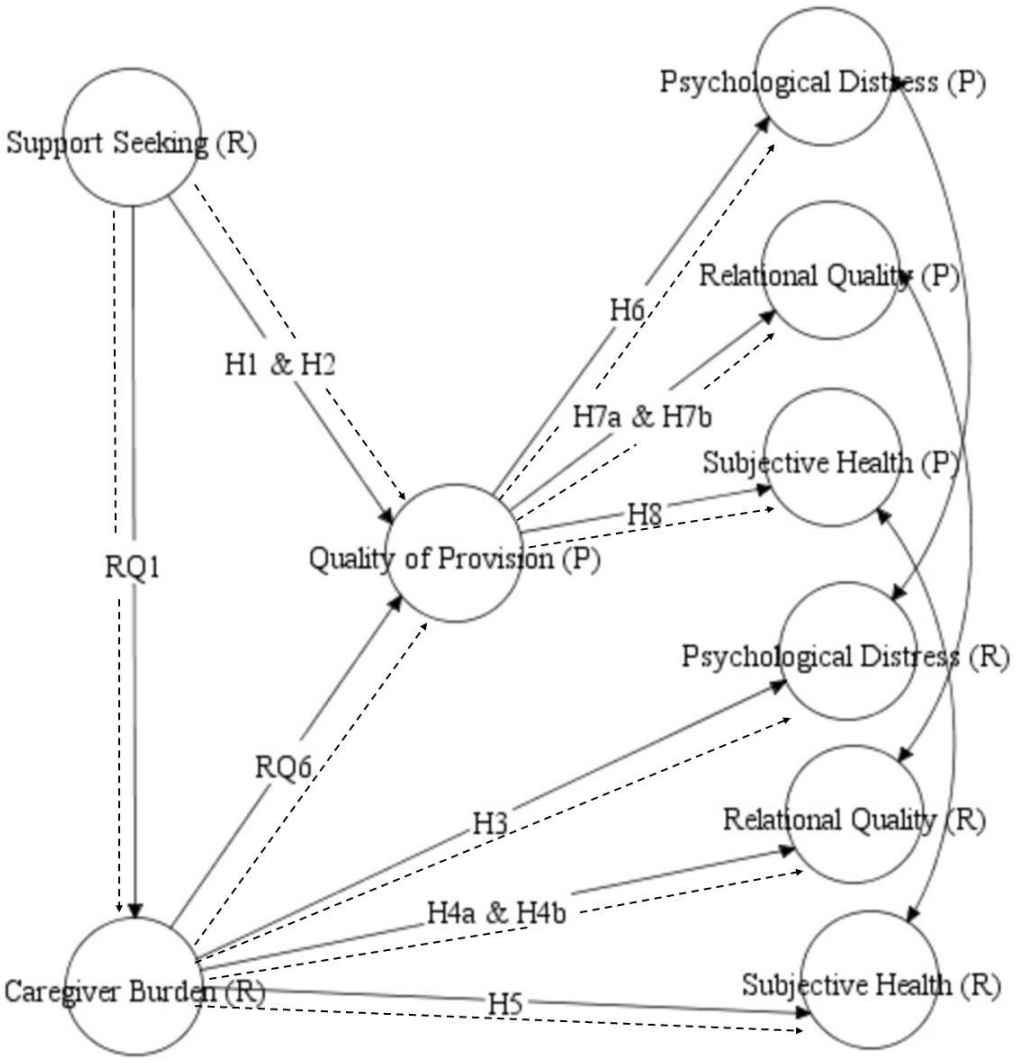

Figure 2.1. Proposed Structural Model
Note: The (P) designates the patient perspective, while the (R) designates the romantic partner perspective.

Chapter 3: Methodology

PARTICIPANTS

Participants (n = 458) for the current study were recruited primarily through social media announcements of the study, and through two national organizations (National Fibromyalgia Association, Lupus Foundation of America) who posted the link to the survey on their research websites. I also used a snowball sampling technique in which participants were asked to recruit others they knew who met the inclusion criteria for the study. In order for couples to qualify for the study, they must have met the following criteria: 1) diagnosis of a rheumatic disorder, 2) be in a romantic relationship, 3) both partners are over the age of 18, 4) patient's relational partner has no indication of a chronic illness, and 5) both partners must be willing to participate. These criteria are consistent with previous research on couples coping with illness (Manne et al., 2004).

Diagnosed patients and their significant others were selected as the unit of analysis in the current study, because previous research has demonstrated that patients diagnosed with a rheumatic disorder are likely to seek social support primarily from their romantic partners (Bernard, Prince, & Edsall, 2000). Further, Corbin and Strauss (1985; 1988) have also written about the importance of significant others in the management of illness trajectories through various forms of "work." It stands to reason that those who are in committed romantic relationships would have the best opportunity to engage in support seeking and provision in terms of illness, biographical, everyday-life, and

communication work which accompanies the experience of these chronic and invisible illnesses (Corbin & Strauss, 1985; 1988; Donovan-Kicken et al., 2012).

If any member of the partnership did not complete the survey or did not include the correct unique code number to be matched, both members of the couple were eliminated from the analysis. There were 85 individuals removed from the dataset due to the inability to match them to their partners. Additionally, 244 individuals (122 couples) were removed based on their completion times of the online survey. The time required to complete the survey was approximately 15-20 minutes according to *Qualtrics*' estimated response times. Individuals (and their accompanying romantic partners) were removed if they completed the survey in less than 12 minutes. Therefore, the final sample included 229 patient-romantic partner dyads. Couples were able to select how they would like to be compensated for their participation in the proposed study. The patients made the decisions about compensation at the end of their survey and could select whether to receive a $10 Amazon electronic gift card or to donate their $10 to one of the following nonprofit organizations: National Fibromyalgia Association, Lupus Foundation of America, or Arthritis Foundation. The large majority of participants (n = 344, 98%) chose to receive the gift card. Financial support for this dissertation project was obtained through the Moody College of Communication's Dissertation Writing Fellowship and the Hogg Foundation's Francis Fowler Wallace Memorial Award.

Patient Demographics

Most of the patients surveyed in the study were male (n = 173, 75.50%) and ranged in ages from 20-66 (M = 36.71, SD = 8.09). The sample primarily identified as White or Caucasian (n = 190, 83.00%), Biracial or Multiracial (n = 125, 54.60%), or Hispanic/Latino(a) (n = 125, 54.60%). Ten patients (4.40%) identified as Native Hawaiian or Pacific-Islander, nine patients (3.93%) identified as Middle Eastern or Middle Eastern American, and two patients identified as African American or Black American (0.87%). The majority of the patients in this sample were highly educated having completed some graduate school (n = 181, 79.0%), while another 11.4% of patients had completed an undergraduate degree (n = 26). Additionally, 78.2% of the patients in the sample (n = 179) were currently working full-time (outside of the home) at the time of completing the study. Twenty-five participants (10.9%) identified as stay-at-home parents, while another 10 participants (4.4%) did not work and were on disability. The sample in the current study seems to include more men and younger individuals than the patient population at large (National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2014); however, the ethnic backgrounds of the patients in the current study and the overarching patient population seem to be similar (National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2014).

In addition to completing generic demographic items, patients were also asked to report more specifically about their illnesses. Patients reported being diagnosed with a wide range of rheumatic conditions. Please see Table 3.1 for the descriptives of these

conditions. The majority of patients in the sample (n = 172, 75.11%) reported using medication and other medical treatments such as infusions and gene therapy to manage their symptoms. Patients (n = 27, 11.79%) also reported seeking treatment from chiropractors and physical therapists or changing dietary and physical exercise habits (n = 19, 8.30%) to alleviate their pain. Other treatment options reported by patients in the sample included: taking over-the-counter vitamins (n = 7, 3.06%), seeing a massage therapist (n = 7, 3.06%), or engaging in homeopathic remedies such as acupuncture or reiki (n = 5, 2.18%).

In order to learn more about the physical debilitation of the patients in the sample, diagnosed individuals were asked to complete two surveys. The arthritis physical function scale ranges from 0 = *without any difficulty* to 3 = *unable to do* and asks about a variety of everyday activities including climbing up stairs, standing up from a chair, and bending down to pick up items from the floor. The patients' average on the arthritis physical function scale was 2.16 (SD = 0.47). The rheumatic health scale asks patients to rate how each statement represents their health in the last month on a scale of 0 = *not at all* to 5 = *very much*. The statements include items such as "I do not have the energy I used to," "I have difficulty planning activities because of my illness or its treatment," and "I find that my illness or its treatment interfere with my ability to work." The average on the rheumatic health scale was 3.59 (SD = 0.54). See Appendix B for the complete list of items. Taken together, these results suggest the sample is moderately debilitated.

Table 3.1

Patient Rheumatic Diagnoses

	n	*%*
Behçet's Syndrome	1	0.44
Chronic Fatigue Syndrome	2	0.87
Complex Regional Pain Syndrome	1	0.44
Fibromyalgia	20	8.73
Infectious Arthritis	15	6.55
Myofascial Pain Syndrome	1	0.44
Osteoarthritis	20	8.73
Polymalgia Rheumatica	25	10.92
Psoriatic Arthritis	7	3.06
Raynaud's Phenomenon	2	0.87
Reactive Arthritis	8	3.49
Rheumatoid Arthritis	92	40.17
Sclerodoma	4	1.75
Sjögren's Syndrome	1	0.44
Spinal Stenosis	1	0.44
Systemic Lupus Erythematosus	37	16.16

Partner Demographics

As the large majority of couples in the sample were heterosexual, most of the partners who participated in the study identified as female (n = 176, 76.90%). The partners ranged in ages from 21-67 (M = 35.85, SD = 8.25). Most of the partners who were included in the current study identified as White or Caucasian (n = 102, 44.50%), Biracial or Multiracial (n = 86, 37.60%), or Hispanic/Latino(a) (n = 40, 17.50%). Only one partner (0.44%) identified as African-American or Black American or Asian or Asian-American. Most of the partners in the sample also identified as both full-time outside of the home employees (n = 103 45.0%) and full-time parents (n = 118, 51.5%). Four of the partners surveyed (1.70%) were retired, two were full time students (0.90%), and one was a part-time or temporary employee (0.40%) at the time of the survey. Similar to the patients in the sample, the partners were also highly educated: six partners (2.60%) completed a graduate or professional degree, 172 partners (75.1%) completed some graduate school, 33 partners (14.4%) earned an undergraduate degree, and 10 partners (4.4%) completed some college courses.

Relationship Demographics

Patients were asked to complete additional items regarding the demographics of their relationship. For the couples included in the current study, the relationships ranged in length from 6 months to 504 months (42 years) with an average of 147.76months (M = 12.31 years, SD = 7.39 years). A large portion of the couples in the sample (n = 183,

79.9%) were either engaged or married at the time of completion. An additional 12 couples (5.2%) reported being in a cohabiting relationship, while the remainder (n = 33, 14.4%) reported being in a dating relationship. Couples also reported on their household income. The range for the sample was $13,000 to $2,000,000 with a median income of $180,000.00 ($SD$ = $135, 960.80).

PROCEDURES

Couples were able to access the link to the online survey via *Qualtrics* from the nonprofit organizations' websites or through various social networking sites (i.e., Facebook, Twitter, Meetups). After entering the survey, each dyad member was asked to create a unique code number and were directed to complete an online survey. Specifically, patients and partners were instructed to type in the last three letters of the patient's last name first followed by the last three letters of the partner's last name. The patients were asked to add a "P" at the end of the code to indicate "patient," while the partners were asked to add an "R" at the end of the code to indicate "romantic partner." This process has been used in other research to match dyadic data (Curran, Burke, Young, & Totenhagen, 2016). In addition to providing the unique code, both members of the couple were asked to provide their email addresses as a secondary method for confirming the correct data were being matched.

The first page of the survey included information regarding informed consent procedures and prompted participants to click to the next page of the survey if they decided to participate in the study. The participants were then directed to a question

asking them whether they were a "patient who has been diagnosed with a rheumatic disorder" or a "spouse or romantic partner of a patient who has been diagnosed with a rheumatic disorder." The skip logics function in *Qualtrics* then directed the participants to the correct survey (i.e., patient or partner) depending on their answer to the question above. Both partners were asked to complete a demographic survey which included information about their gender, ethnic and racial background, and relational history. The patients were asked to complete descriptive information regarding the type of rheumatic disorder the ill partner has been diagnosed with and the perceived severity of symptoms associated with the illness. Couples also completed the independent and dependent measures for the study (discussed in more detail below). Finally, the participants entered their email addresses in order to send the compensation.

MEASURES

The following section will include a description of each of the measures included in the current study. Additionally, information regarding the reliability estimates and the descriptive statistics for each measure will be discussed below. Please see Tables 3.2 and 3.3 for the means and standard deviations of the patient and partner variables respectively.

Table 3.2

Means and Standard Deviations of Study Variables

	M	*SD*
Patient Variables		
Quality of Support Provision	3.10	1.28
Relational Satisfaction	6.36	.64
Psychological Distress	3.11	.74
Subjective Health	2.48	.60

Note. Quality of support provision was measured on a scale of 1 to 7 with higher scores indicating better quality support. Relational satisfaction was measured on a scale of 1-7 with higher scores indicating greater satisfaction. Psychological distress was measured on a scale of 0 to 4 with higher scores indicating more frequent symptoms of distress. Subjective health was measured on a scale of 1 to 5 with higher scores indicating better health.

Table 3.3

Means and Standard Deviations of Study Variables

	M	*SD*
Partner Variables		
Frequency of Support Seeking	2.89	.46
Caregiver Burden	3.50	.67
Relational Satisfaction	6.34	.58
Psychological Distress	3.00	.75
Subjective Health	2.37	.44

Note. Frequency of support seeking was measured on a scale of 0 to 3 with higher scores indicating greater frequency of support seeking. Caregiver burden was measured on a scale of 0 to 4 with higher scores indicating greater experience of burden. Relational satisfaction was measured on a scale of 1-7 with higher scores indicating greater satisfaction. Psychological distress was measured on a scale of 0 to 4 with higher scores indicating more frequent symptoms of distress. Subjective health was measured on a scale of 1 to 5 with higher scores indicating better health.

Frequency of Support Seeking Measure

In order to measure support providers' perceptions of patients' frequency of support seeking, I created a measure based on previous research in the following areas: theory of illness trajectories and the construct of work, communicative management of chronic and invisible illnesses, and support seeking behaviors, more specifically (Corbin & Strauss, 1985; 1988; Cutrona & Suhr, 1992; Donovan-Kicken et al., 2012; Doherty & MacGeorge, 2012; Faw, 2014). Items were developed for each form of work: illness-related, everyday life, biographical, and communication. For instance, items created to represent illness-management work asked partners to report how frequently the patients asked them to "pick up medication on their behalf" and "massage their muscles to relieve their pain." Biographical work items focused on support such as helping them to "see their situation in a new light" and "come to terms with their illness." Items developed for everyday life work asked partners how often the patients asked them to "take over household duties such as cooking, cleaning, and doing laundry" and "help them by running errands such as grocery shopping for the household." Lastly, communication work items focused on frequency of support seeking behaviors such as "looking up information about their illness" and "explain[ing] their diagnosis to others." The complete scale (see Appendix C) consists of 18 items and was measured with a Likert-type response option ranging from 0 to 3, with lower scores indicating less frequency of support seeking and higher scores indicating higher frequency of support seeking. As the current study aims to examine whether support seeking attempts from a patient influence

a romantic partner's quality of support provision in return, this variable was measured from the romantic partner's perspective. The mean for the frequency of support-seeking scale among partners in the current study was 2.89 (*SD* = .46). Cronbach's alpha for the full frequency of support-seeking scale was .84

First, a principal components analysis was conducted to determine whether the items were explained by a set of latent variables. A Kaiser-Meyer-Olkin sampling adequacy test was conducted to ensure the data were acceptable for testing a factor structure. More specifically, the test examines the proportion of variance among the variables in the data set which may be attributable to some shared variance between them. The sampling adequacy value in the current study was .648, which exceeds the acceptable criterion of .6 (Cerny & Kaiser, 1977). Bartlett's test of sphericity was also conducted to determine whether a principal components analysis would be appropriate with the current data set. This statistical test also examines the factorability of the variables in the data set or the extent to which the variables in the data set are correlated. Results from Bartlett's test of sphericity revealed the variables in the study could be factor analyzed: χ^2 (210) = 1282.142, $p < .001$.

In order to determine how many latent factors predicted the items on the support seeking attempts scale developed for the current study, I used three criteria: 1) Kaiser's rule, 2) item-factor loadings, and 3) a visual inspection of the Scree plot. Kaiser's rule suggests that components with an eigenvalue greater than one have internal consistency (Kaiser, 1960). Although there were seven factors with eigenvalues greater than one,

previous research suggests that this alone is not an appropriate method for estimating factors (Velicer & Jackson, 1990). See Figure 3.1 for the initial scree plot from the principal components analysis. In fact, in a meta-analysis Osborne and Costello (2005) found that 36% of samples they examined retained too many factors. The authors (Osborne & Costello, 2005) argued instead that a more appropriate method for retaining the proper number of factors is to examine the Scree plot produced in the output. Further, researchers often discuss the difficulty of retaining enough factors to appropriately represent the data while balancing the statistical and theoretical importance of these factors (Fabrigar, Wegener, MacCallum, & Strahan 1999; Henson & Roberts, 2006; Schönrock-Adema, Heijne-Penninga, van Hell, & Cohen-Schotanus, 2009).

The seven factors identified in the initial (unrotated) principal components analysis were not theoretically sound. For instance, the items "My partner has asked me to massage their muscles to relieve their pain" and "My partner has asked me to tell them they're OK just the way they are" both loaded onto the same factor despite measuring conceptually different lines of work (i.e., illness work and biographical work). To improve upon this initial solution, the number of components extracted was constrained to four based on the theoretical premise of the four lines of work (illness work, biographical work, everyday life work, communication work) which are measured in the current scale. Additionally, an oblique rotation was used to allow the components to correlate. The results of the principal components analysis indicated approximately 44% of the variance was explained by the four factors. The factor loadings for the four-factor

scale are located in Table 3.4. McCroskey and Young's (1979) 60/40 rule was used to determine which items to retain in each factor. This conservative rule asserts that items should only be retained when loading on the primary factor at approximately .60 and not cross-loading on a secondary factor at above .40. However, following the advice of Osborne and Costello (2005) items which did not cross load on a secondary factor and were above .40 were also retained in the scale.

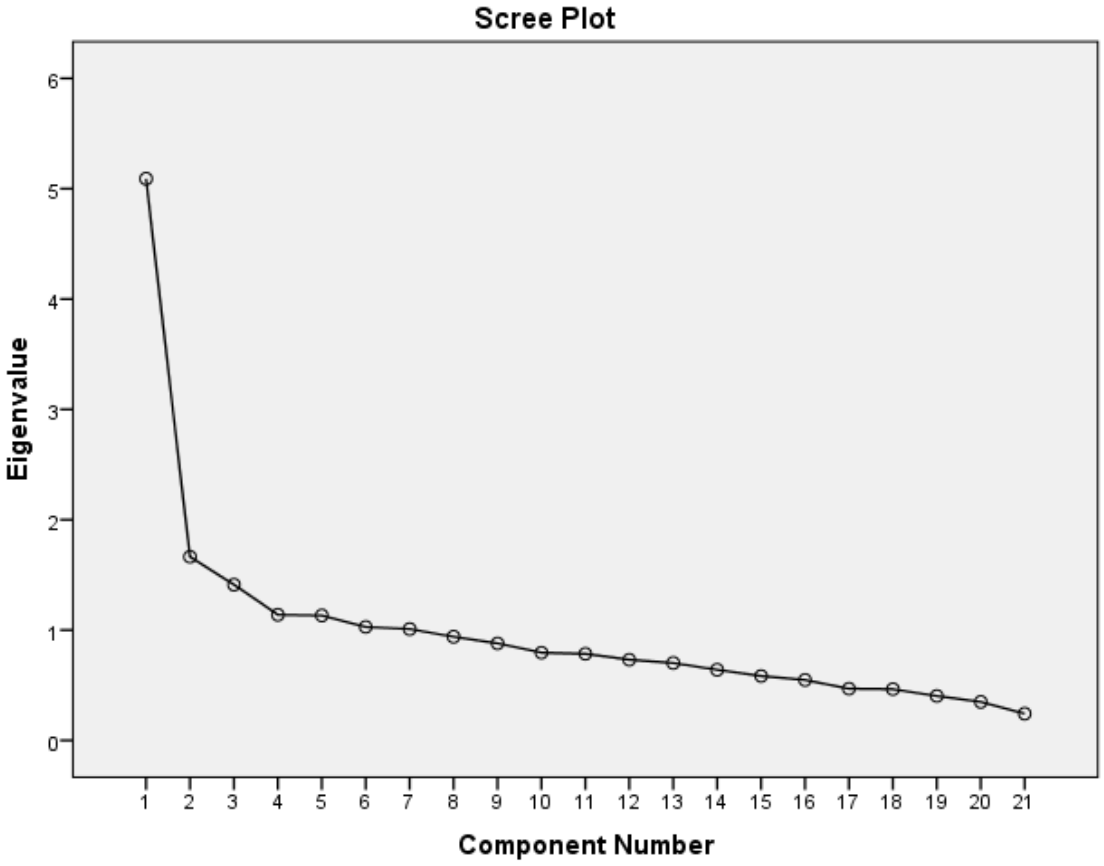

Figure 3.1. Scree Plot of Exploratory Factor Analysis

Table 3.4
Factor Loadings for Perceptions of Support Seeking Scale

Item *Factor*	*1*	*2*	*3*	*4*
My partner has asked me to help them by picking up medication on their behalf.	.25	.20	.00	**.49**
My partner has asked me to massage their muscles to relieve their pain.	-.04	.00	**.76**	.12
My partner has asked me to help them manage pain symptoms by engaging in physical exercise with them.	**.54**	.36	-.39	-.04
My partner has asked me to help them manage pain symptoms by changing dietary habits with them.	**.48**	-.03	.02	.28
My partner has asked me to do some activity together to get their mind off of the pain.	.16	.10	**.66**	-.22
My partner has asked me to accompany them to healthcare visits.	-.20	.27	.13	**.58**
My partner has asked me to help them come to terms with their illness.	-.24	**.70**	.17	.08
My partner has asked me to help them incorporate their illness into their identity.	**.74**	-.27	.22	-.02
My partner has asked me to help them see their situation in a new light.	.18	**.44**	-.13	.12
My partner has asked me to help them find something positive about their illness experience.	**.67**	.03	.04	-.09
My partner has asked me to legitimize their feelings about the illness.	-.08	**.67**	.22	-.31

Table 3.4
Factor Loadings for Perceptions of Support Seeking Scale (continued)

Item *Factor*	*1*	*2*	*3*	*4*
My partner has asked me to take over household duties such as cooking, cleaning, and doing laundry.	.08	-.13	**.43**	.33
My partner has asked me to take care of household expenses.	.00	**.41**	.08	.29
My partner has asked me to help them by running errands such as grocery shopping for the household.	-.02	-.15	.00	**.76**
My partner has asked me to help them by answering questions people have about their illness.	**.75**	-.04	-.02	-.12
My partner has asked me to help them by looking up information about their illness.*	.30	.33	.16	-.12
My partner has asked me to help them by updating family and friends about their illness.*	.34	.33	.12	-.07
My partner has asked me to help them by controlling the flow of information about their illness to others.*	.38	.05	.27	.08
My partner has asked me to help explain their diagnosis to others.	**.67**	-.01	.04	.11
My partner has asked me to tell them they're OK just the way they are.	.09	.16	**.48**	.16
My partner has asked me to just listen to them about issues surrounding their illness experience.	.05	**.55**	-.20	.14

Note. *indicates items removed from the scale due to low factor loadings

The first factor had an eigenvalue of 5.09 and explained approximately 24% of the variance. The second factor's eigenvalue was estimated at 1.66 and explained 7.93% of the variance. The third factor had an eigenvalue of 1.41 and explained 6.72% of the variance. Finally, the fourth factor had an eigenvalue of 1.14 and explained 5.42% of the variance. Cronbach's alpha was calculated for each of the factors: factor one (α = .73), factor two (α = .57), factor three (α = .58), and factor four (α = .50).

Based on the low reliability estimates of three of the four factors and the lack of theoretical explanations for these items to load on the same factors, I made the methodological decision to re-run the principal components analysis and constrain the factors to one. The factor loadings for the one-factor solution are included in Table 3.5. The eigenvalue for this factor was 5.09, and 24.1% of the variance was explained by this factor. Cronbach's alpha for the one-factor scale was much improved, at .84. Four items were removed from the unidimensional scale based on poor factor loadings: 1) "I asked my romantic partner to massage my muscles to relieve my pain," 2) "I asked my romantic partner to accompany me to healthcare visits," 3) "I asked my romantic partner to take over household duties such as cooking, cleaning and doing laundry," and 4) "I asked my romantic partner to help me by running errands such as grocery shopping for the household."

In addition to conducting a principal coponents analysis, I used MPlus 7.0 statistical software (Muthén & Muthén, 1998-2012) to run a confirmatory factor analysis. Specifically, this was to confirm that the one-factor solution fit the data better than the

four-factor solution. The confirmatory factor analysis indicated poor fit for the four-factor solution χ^2 (101) = 761.19, $p < .001$, RMSEA = .17, SRMR = .47, CFI = .37, TLI = .26. The initial Chi-square for the one-factor solution demonstrated better fit: χ^2 (119) = 238.68, $p < .001$, RMSEA = .07, SRMR = .06, CFI = .83, TLI = .80. A LaGrange Multiplier test was used to determine whether any paths should be added to a revised version of the one-factor model. Results suggested adding five correlation paths between the error terms of similarly-phrased items. The revised Chi-square demonstrated good fit: χ^2 (114) = 180.58, $p < .001$, RMSEA = .05, SRMR = .05, CFI = .91, TLI = .89. Additionally, all of the remaining items had factor loadings above 0.4, the criterion for acceptable factor loadings according to Osborne and Costello (2005). Thus, based on the higher reliability estimates and better model fit indices, the one-factor solution was retained for the primary analyses in the current study. This operationalization of the support seeking construct was an appropriate conceptual fit with the ideas enveloped in the theory of illness trajectories.

Table 3.5
Factor Loadings for One-Factor Solution of Perceptions of Support Seeking Scale

Item	*Factor 1*
My partner has asked me to help them by picking up medication on their behalf.	.60
My partner has asked me to help them manage pain symptoms by engaging in physical exercise with them.	.54
My partner has asked me to help them manage pain symptoms by changing dietary habits with them.	.53

Table 3.5
Factor Loadings for One-Factor Solution of Perceptions of Support Seeking Scale (continued)

Item	*Factor 1*
My partner has asked me to do some activity together to get their mind off of the pain.	.44
My partner has asked me to help them come to terms with their illness.	.47
My partner has asked me to help them incorporate their illness into their identity.	.51
My partner has asked me to help them see their situation in a new light.	.49
My partner has asked me to help them find something positive about their illness experience.	.58
My partner has asked me to legitimize their feelings about the illness.	.42
My partner has asked me to take care of household expenses.	.49
My partner has asked me to help them by answering questions people have about their illness.	.55
My partner has asked me to help them by looking up information about their illness.	.54
My partner has asked me to help them by updating family and friends about their illness.	.58
My partner has asked me to help them by controlling the flow of information about their illness to others.	.52
My partner has asked me to help explain their diagnosis to others.	.63
My partner has asked me to tell them they're OK just the way they are.	.51
My partner has asked me to just listen to them about issues surrounding their illness experience.	.44

Established Social Support Measure

Finally, in order to conduct a validity test, all partners also completed items from an already established measure of social support developed by Xu and Burleson (2001). The original scale (see Appendix D) measures participants' perceptions of how frequently their relational partners enact the various forms of social support (i.e., emotional, esteem, network, informational, tangible) on a scale from *1 = Didn't receive any at all* to *5 = Received a great deal*. I altered the phrasing of the scale for the current study to reflect romantic partners' perceptions of support seeking instead of the original scale's focus on the support recipient. For instance, the original scale included the following item: "Comforting you when you are upset by showing some physical affection (including hugs, hand-holding, shoulder patting, etc.)." The item in the current study was phrased as follows: "My partner has asked me to comfort them when they are upset by showing some physical affection (including hugs, hand-holding, shoulder patting, etc.)."

The revised scale included items for each of the five types of social support. For instance, some items related to *emotional support* asked partners how often their chronically ill loved ones asked them "to tell them that I love them and feel close to them" and "to express sorrow or regret for their situation or distress." The *esteem support* items were represented by questions such as how frequently partners were asked "to assure them that they are a worthwhile person" or "to express esteem or respect for a competency or personal quality of theirs." Items focused on *network support* asked partners to report how frequently patients asked them "to connect them with people

whom they may turn to for help" and "to offer to provide them with access to new companions." Sample items for *informational support* include "ask me to give them advice about what to do" and "ask me to analyze a situation with them and tell them about available choices and options." Lastly, *tangible support* items asked partners to report on how frequently patients asked them "to offer to lend something (including money)" and "to take care of their domestic chores when they are feeling ill." Please see Table 3.6 for the means and standard deviations of the five sub-scales of the social support scale reported by partners in the current study (Xu & Burleson, 2001).

Table 3.6

Descriptives for Established Social Support Scale

	M	*SD*	*α*
Emotional Support	3.62	.58	.61
Esteem Support	3.54	.65	.69
Network Support	3.48	.75	.77
Informational Support	3.51	.72	.76
Tangible Support	3.64	.63	.69

Note. Scale was developed by Xu and Burleson (2001). Response options were 1 to 5, with higher scores indicating greater extent of received support.

Concurrent Validity Check

Concurrent validity is a measure of criterion validity in which researchers compare the results of a new measure to those of an established measure of the same or

similar variable (McIntire & Miller, 2005). As I developed a new scale for the current study aimed at situating social support as "work" (Corbin & Strauss, 1985), it was important to establish concurrent validity between the new scale and a valid social support measure. I selected Xu and Burleson's (2001) social support measure as the items focus on the various types of social support. More specifically, I assert that the four lines of work (and the scale I developed to measure these lines of work) parallel this typology of support. For example, a comparison may be drawn between illness-related work, everyday life work and tangible support as the constructs suggest relational partners seek support for tasks related to taking them to their physician appointments, picking up their medication, or taking over household chores. Further, biographical work seems to relate to emotional, network and esteem support as partners are asked to help patients come to terms with their illness. Finally, a parallel may be drawn between communication work and informational support as partners are often asked to help patients through seeking information about their illness. Therefore, a concurrent validity test between the two scales seems an appropriate method for lending credence to the scale developed in the current study.

In order to establish concurrent validity, I ran five Pearson-product moment correlations between the partners' scores on the social support scale created for the current study and the established measure developed by Xu and Burleson (2001). Please see Table 3.7 for the bivariate correlations which examine how these scores are associated in the study sample. The results of these correlations suggest that the scale

created for the current study was moderately correlated with the established measure developed by Xu and Burleson (2001). This provides some initial support for concurrent validity of the newly created scale. These moderately high *r*-values suggest that the social support as work scale and the established scale from Xu and Burleson (2001) which measures types of support are examining similar, but not exactly the same constructs. Further, these results provide some credibility for the argument that the constructs of work and social support are parallel.

Table 3.7

Bivariate Correlations between Two Support Seeking Measures

	Variable	1	2	3	4	5	6
1	Support Seeking	1	.72**	.74**	.77**	.74**	.65**
2	Emotional Support		1	83**	.81**	.83**	.78**
3	Esteem Support			1	.83**	.85**	.75**
4	Network Support				1	.87**	.70**
5	Informational Support					1	.72**
6	Tangible Support						1

Note. ** $p < 0.01$

Patients were also asked to complete a one-item global measure of their "frequency with which [they] asked [their] romantic partner for help in managing [their] illness in the last month." This item was included in the study to obtain a gauge of how

consistent these support-seeking behaviors have been in their relationship. A majority of the patients (n = 124, 54.1%) reported that their support seeking increased over the past 30 days, while another 64 patients (27.9%) suggested their support seeking remained consistent. Finally, 39 patients (17.0%) suggested their frequency of support seeking decreased over the last month.

Quality of Support Provision Measure

In order to measure the quality of support provision, perceived effectiveness of the support provision was identified by the chronically ill participants (patients) only. I operationalized effectiveness of support provision using the Person-Centeredness (PC) scale. The 5-item PC scale (see Appendix E measures Burleson's (1987) typology of high, moderate, and low person-centered messages using a series of 7-point semantic differential items developed by Jones (2004). Response options ask participants to indicate if they perceived the support they received from their romantic partners to be "self-centered vs. other-centered, invalidates vs. validates, judges vs. empathizes, disregards vs. acknowledges, unconcerned vs. concerned." Lower scores on this measure indicate lower quality of provision. The average of patient scores on the PC scale in the current study was 3.10 (SD = 1.28) while Cronbach's alpha was reported at .85.

A confirmatory factor analysis was conducted to ensure the data fit well. The results suggested good fit: χ^2 = 17.23 (df = 5), p < .01, RMSEA = .10, SRMR = .03, CFI = .97, TLI = .95. One covariance path between error terms was suggested by the significant

results of the modification indices. This improved model fit: $\chi^2 = 7.36$ (df = 4), $p = .12$, RMSEA = .06, SRMR = .02, CFI = .99, TLI = .98.

Caregiver Burden Measure

Caregiver burden was measured with the abbreviated Zarit Burden Interview (ZBI; Knight, Fox, & Chou, 2000; Longmire & Knight, 2011) and was only completed by partners or support providers. The abbreviated ZBI (see Appendix F was selected as it is one of the most commonly used measures for caregiver burden (Schulze & Rossler, 2005) and measures three factors of caregiver burden: embarrassment/anger, patient's dependency, and self-criticism (Knight et al., 2000; Longmire & Knight, 2011). Eight items of the scale measure the embarrassment/anger dimension, while four items measure the patient's dependency dimension and two items measure the self-criticism dimension. The subscales were measured using a range from 0 to 4, with higher scores specifying greater experiences of caregiver burden. The scale consists of 14 items, with total scores ranging from 0 to 88. Sample items for the embarrassment/anger dimension included "I feel angry about my loved one's illness" and "I feel embarrassed by my loved one's illness." Patient's dependency items included "I don't have time for myself" and "My social life has suffered as a result of my loved one's illness." Lastly, self-criticism was measured by items such as "I feel like I should be doing more to help care for my loved one" and "I feel like I could do a better job to help care for my loved one." Previous research has demonstrated acceptable reliability estimates of .92 (Knight et al., 2000) and has provided evidence of validity (Longmire & Knight, 2011).

In the current study, the reliability estimates were unacceptable for two of the sub-scales: anger/embarrassment (α = .84), patient's dependency (α =.51), and self-criticism (α =.26). As reliability estimates for two-item scales are typically low due to the small number of items, a Pearson product-moment correlation was conducted for the two items included in the self-criticism scale. The results suggested a small, negligible relationship between the two items: $r = .26$, $p = .03$. Therefore, the self-criticism scale was deemed to be unreliable. The sub-scales were combined in the current study to improve the reliability estimate (α = .86). The mean for the caregiver burden scale in the partner sample was 3.50 ($SD = 0.67$).

To ensure the one-factor structure was a better fit of the data, two confirmatory factor analyses were conducted. The three-factor solution indicated poor fit $\chi^2 = 244.98$ (df = 77), $p < .001$. The fit indices were as follows: RMSEA = .10, SRMR = .15, CFI = .84, TLI = .81. Modification indices suggested adding four covariance paths between related error terms. This improved model fit: $\chi^2 = 244.98$ (df = 77), $p < .001$, RMSEA = .07, SRMR = .13, CFI = .92, TLI = .90. The one-factor solution seemed to fit the data better: $\chi^2 = 195.21$ (df = 77), $p < .001$, RMSEA = .08, SRMR = .05, CFI = .89, TLI = .87. The modification indices also suggested adding three covariance paths between related error terms for the one-factor model. This improved model fit: $\chi^2 = 142.60$ (df = 74), $p < .001$, RMSEA = .06, SRMR = .05, CFI = .93, TLI = .92. As the confirmatory factor analysis results and reliability estimates are improved for the one-factor model as

opposed to the three-factor structure, the caregiver burden scale was collapsed into one factor for the current study.

Relational Satisfaction Measure

Relational satisfaction was measured using the Quality Marriage Index (see Appendix G) developed by Norton (1983). The first five items ask respondents to indicate their level of satisfaction in their marriage by selecting a response on a seven-point, Likert-type scale from *1 = Very Strong Disagreement* to *7 = Very Strong Agreement*, while the sixth item is a global, semantic-differential item which ranges from *1 = Very Unhappy* to *10 = Perfectly Happy*. The items were revised to examine satisfaction in "relationships" instead of "marriages" as some of the participants were not married to their romantic partners. Sample items include "We have a good relationship" and "My relationship with my partner makes me happy." The reliability estimates for the Quality Marriage Index in the current study were .70 for patients and .64 for partners. The reliability test suggested removing item two ("My relationship with my partner is very stable") from the scale. Reliability estimates improved to .72 for patients and .64 for partners. The mean for the QMI for patients in the current study was 6.36 (SD = 0.64). The mean for this item was 6.34 (SD = 0.58), which suggests that most partners reported being quite satisfied in their relationships.

A confirmatory factor analysis was conducted on patients' relational satisfaction and partners' relational satisfaction to ensure good fit of the measure. The results of the CFA for the patient sample indicated moderately good fit: $\chi^2 = 19.71$ (df = 5), $p < .001$,

RMSEA = .11, SRMR = .05, CFI = .91, TLI = .83. Two covariance paths were added to the model based on the significant tests of modification indices. This improved model fit: $\chi^2 = 3.79$ (df = 3), $p = .29$, RMSEA = .03, SRMR = .02, CFI = 1.0, TLI = .98. Similarly, the results of the CFA for the partner sample indicated moderately good fit: $\chi^2 = 15.73$ (df = 5), $p < .01$, RMSEA = .10, SRMR = .05, CFI = .88, TLI = .76. One covariance path between error terms was added to the model. This increased model fit: $\chi^2 = 6.75$ (df = 4), $p = .15$, RMSEA = .06, SRMR = .03, CFI = .97, TLI = .92.

Patients and partners were also asked to report on how they would describe their relationship satisfaction before and after the rheumatic disorder diagnosis. Please see Table 3.8 for the results of these items.

Table 3.8

Frequencies of Relationship Satisfaction

	n	*%*
Patient Perspective		
It has remained consistent	23	10.00
It has increased	197	86.00
It has decreased	4	1.7
We met after the diagnosis	4	1.7
Partner Perspective		
It has remained consistent	19	8.30
It has increased	200	87.30
It has decreased	7	3.10
We met after the diagnosis	3	1.30

Relational Commitment Measure

Relational commitment was operationalized using Stafford and Canary's (1991) Revised Relational Commitment Scale (see Appendix G. The scale is comprised of five items with options ranging from *1 = Strongly Disagree* to *7 = Strongly Agree*. The scale includes items such as: "I want this relationship to last as long as possible," and "I am committed to maintaining this relationship." Cronbach's alpha for the relational commitment measure was deemed to be too low in both the patient ($\alpha = .44$) and partner ($\alpha = .51$) samples. See Table 3.9 for the patient means and standard deviations for each item on the relational commitment measure. Table 3.10 includes the partner means and standard deviations. Due to the low reliability values, this scale

was removed from the primary analyses of the study. Consequently, the hypotheses and research questions associated with this variable were also removed from the study.

Table 3.9

Patient Means and Standard Deviations of Relationship Commitment

	M	*SD*
I want this relationship to last as long as possible.	5.79	0.72
I am committed to maintaining this relationship.	5.45	1.03
It is unlikely that this relationship will end in the near future.	5.87	1.04
There are no others I want to get to know romantically.	5.69	1.12
I do not want another romantic partner.	5.94	1.11

Note. Relational commitment was measured on a scale of 1-7 with higher scores indicating greater commitment.

Table 3.10

Partner Means and Standard Deviations of Relationship Commitment

	M	*SD*
I want this relationship to last as long as possible.	5.77	0.72
I am committed to maintaining this relationship.	5.46	1.04
It is unlikely that this relationship will end in the near future.	5.69	1.18
There are no others I want to get to know romantically.	5.69	1.13
I do not want another romantic partner.	5.76	1.14

Note. Relational commitment was measured on a scale of 1-7 with higher scores indicating greater commitment.

Couples were also asked to individually report on how their relational commitment changed before and after the diagnosis. Please see Table 3.11 for the frequencies related to these items.

Table 3.11

Frequencies of Relationship Commitment Change

	n	*%*
Patient Perspective		
It has remained consistent	24	10.50
It has increased	194	84.70
It has decreased	7	3.10
We met after the diagnosis	4	1.7
Partner Perspective		
It has remained consistent	25	10.90
It has increased	197	86.00
It has decreased	4	1.70
We met after the diagnosis	3	1.30

Psychological Distress Measure

Both partners also completed the Kessler Psychological Distress measure (K10; Kessler et al., 2002). The K-10 scale (see Appendix H) consists of 10 items and asks patients and their romantic partners to indicate how often in the last 30 days on a scale from *0 = None of the Time* to *4 = Always* they experienced depressive symptoms including feeling "hopeless," "worthless," or "so sad that nothing could cheer them up." The K10 distress measure demonstrated good reliability estimates in the current study: patients ($\alpha = .85$) and partners ($\alpha = .86$. The mean for

the patients in the current sample was 3.11 (*SD* = 0.74), while the mean for the partners in the current sample was 3.00 (*SD* = 0.75).

Two separate confirmatory factor analyses were conducted to ensure the goodness-of-fit of the psychological distress measure. The results indicated moderately good fit in the patient sample: $\chi^2 = 103.10$ (df = 35), $p < .001$, RMSEA = .09, SRMR = .05, CFI = .91, TLI = .88. The modification indices suggested adding two covariance paths between related error terms. This improved model fit: $\chi^2 = 60.50$ (df = 33), $p < .01$, RMSEA = .06, SRMR = .04, CFI = .96, TLI = .95. Similarly, the results of the CFA indicated adequate fit in the partner sample: $\chi^2 = 89.09$ (df = 35), $p < .001$, RMSEA = .08, SRMR = .04, CFI = .93, TLI = .91. The modification indices suggested adding one covariance path between related error terms. This resulted in better model fit: $\chi^2 = 65.69$ (df = 34), $p < .001$, RMSEA = .06, SRMR = .04, CFI = .96, TLI = .95.

Both members of the dyads were also asked to report on how the rheumatic disorder diagnosis influenced their levels of psychological distress. Please see Table 3.12 for the frequencies related to these items.

Table 3.12

Frequencies of Psychological Distress

	n	*%*
Patient Perspective		
It has remained consistent	87	38.00
It has increased	67	29.30
It has decreased	74	32.3
Partner Perspective		
It has remained consistent	85	37.10
It has increased	65	28.40
It has decreased	73	31.90

Subjective Health Measure

Both members of the couple completed a perceived physical health measure (see Appendix I) which was assessed using the general health subscale of the MOS SF-36 (Ware & Sherbourne, 1992). The five-item measure asks participants to rate their global physical health in relation to everyday activities such as "walking, climbing stairs, carrying groceries, or moving." Other sample items include "I am as healthy as anybody I know" and "My health is excellent." The reliability estimates for the subjective health measure were adequate for patients ($\alpha = .67$) and poor for partners ($\alpha = .43$). The mean for the patients' subjective health was 2.48 ($SD = 0.60$), while the mean for the partners' subjective health was 2.37 ($SD = .44$). Due to the measure's poor estimates in the partner sample, the scale was not included in the primary analyses in the current study. Instead, the global item ("In general, would you say your health is…") ranging from *1 = Excellent* to *5 = Poor* was included as the observed dependent variable

in both the patient and partner samples. The patient mean for this item was 2.37 (*SD* = .81), while the partner mean for this item was 2.20 (*SD* = 0.56), indicating that most partners in the sample perceive their health to be very good.

Chapter 4: Results

The current study aimed to investigate the complex and dyadic nature of supportive communication in the context of rheumatic disorders. The chapter that follows will test a structural model examining the impact of frequency of support seeking on quality of support provision between couples managing one partner's rheumatic disorder. Additionally, this study will explore whether these support providers become overwhelmed or burdened by the frequency with which they are prompted to provide social support, or if their quality of provision increases as a result of the recurring support seeking attempts. Lastly, the relationship between the patient's frequency of support seeking and the support provider's burden, and both partners' subsequent psychological, relational and health outcomes will be explored. This chapter will detail the methodological choices I made including preliminary (i.e., testing statistical assumptions and examining the normality of the data) and primary (i.e., confirmatory factor analysis and structural equation modeling) analyses of the sample data.

PRELIMINARY ANALYSES

Missing Data

First, preliminary analyses were conducted on the data to explore missingness of the data, skewness, kurtosis, and any outlying cases in addition to examining the statistical assumptions associated with structural equation modeling. The data set included 140 missing cases, or individual data points (0.01%). Little's MCAR test was conducted to determine whether these cases were missing completely at random (MCAR). The results of this test indicate the data were missing completely at random: $\chi^2 = 16107.31$, $df = 17129$, $p = 1.00$. Thus, maximum likelihood (ML) estimation through the MPlus software was used to impute the missing values.

Allison (2012) argued this is an appropriate and even preferred method to multiple imputation (MI) for dealing with missing data when the MCAR assumption is met.

Normality

Normality of the data was determined by inspecting histograms, quantile (QQ) plots, probability (PP) plots, box plots, skewness and kurtosis values and their associated standard errors, and the Kolmogorov-Smirnov and Shapiro-Wilk statistical tests. Please see Table 4.1 for the skewness and kurtosis coefficients for the patient sample and Table 4.2 for the skewness and kurtosis coefficients for the partner sample in the current study. These varied methods were used to detect normality of the data as the Kolmogorov-Smirnov and Shapiro-Wilk statistical tests are sensitive to larger sample sizes and can falsely indicate skewed data. Further, previous research has demonstrated that departures from normality have less influence on parametric tests in datasets with larger sample sizes (Miles & Shevlin, 2006). Therefore, normality was assumed a) after visually inspecting the histograms and plots and b) if the skewness and kurtosis values were less than 1 or c) if the skewness and kurtosis values were larger than 1 but less than 2 (Miles & Shevlin, 2006). When skewness and kurtosis scores were close to these parameters, I also examined the standard errors associated with the skewness and kurtosis values. Miles and Shevlin (2006) assert that skewness and kurtosis values that are greater than two times the absolute value of the associated standard errors would be deemed non-normal. Based on these inspections, six items measured from the patient perspective and three items measured from the partner perspective did not follow a normal distribution. The one item which was positively skewed was transformed using the inverse log function, while the eight variables which were negatively skewed were transformed by squaring the values.

Table 4.1

Skewness and Kurtosis Coefficients in Patient Sample

Variable	Skewness	SE	Kurtosis	SE
Relational Satisfaction				
Item 1	-1.48	.19	4.87	.39
Item 6	-1.61	.19	6.35	.39
Relational Commitment				
Item 5	-1.19	.19	2.44	.39
Subjective Physical Health				
Item 1	2.05	.19	3.95	.39
Support Seeking (new scale)				
Item 1	-.96	.19	2.31	.39
Support Seeking (established)				
Item 1	1.46	.19	3.77	.39

Table 4.2

Skewness and Kurtosis Coefficients in Partner Sample

Variable	Skewness	SE	Kurtosis	SE
Caregiver Burden				
Item 1	-1.73	.19	2.00	.39
Relational Satisfaction				
Item 6	-1.73	.19	2.00	.39
Support Seeking (established)				
Item 1	-1.78	.19	4.92	.39

Although the Kolmogorov-Smirnov and Shapiro-Wilk statistical tests were still significant after the transformations, the histograms and other visual inspection plots suggested that the transformed variables were more normally distributed than the raw data. See Table 4.3 and 4.4 for the transformed skewness and kurtosis values. Further, as the central limit theorem

has demonstrated, departures from normality are less likely to impact the results of parametric testing when the sample size is larger than 100. As the current study included 229 dyads, these non-normal distributions are not likely to bias the results.

Table 4.3
Transformed Skewness and Kurtosis Coefficients in Patient Sample

Variable	Skewness	SE	Kurtosis	SE
Relational Satisfaction				
Item 1	-.48	.16	1.55	.32
Item 6				
Relational Commitment				
Item 5	-.52	.16	-.46	.32
Support Seeking (new scale)				
Item 1	.33	.16	1.74	.32
Support Seeking (established scale)				
Item 1	-.55	.16	1.56	.32

Table 4.4
Transformed Skewness and Kurtosis Coefficients in Partner Sample

Variable	Skewness	SE	Kurtosis	SE
Caregiver Burden				
Item 1	-1.28	.16	1.04	.32
Relational Satisfaction				
Item 6	-.37	.16	2.62	.32
Support Seeking (established scale)				
Item 1	-.77	.16	2.54	.32

Inspecting for Outliers

Outliers refer to "observations that do not follow the pattern of the majority of the data" (Rousseeuw & van Zomeren, 1990). It is important to identify outliers in any data set, because these observations may skew the results by affecting the variance of the study variables. Further, when left unaddressed, outliers may influence Type I or Type II error.

In typical regression or ANOVA analyses, researchers explore whether the data set includes univariate outliers, or extreme scores on one variable in the study. In structural equation modeling, it is more appropriate to examine whether multivariate outliers are present in the data set (Ullman, 2006). Multivariate outliers are extreme scores on at least two variables in the study. An appropriate method for detecting multivariate outliers is a computation of the Mahalanobis distance (Mahalanobis, 1936; Rousseeuw & van Zomeren, 1990) which examines how far apart (in standard deviation measurements) each data point is from the distribution of the data. Therefore, I computed Mahalanobis distance using the statistical software *SPSS* 24. The D^2 values were then compared to the Chi-square critical value, and values which had *p*-values less than .001 were considered an outlier (Meyer, Gamst, & Guarino, 2006). There were no cases in the current study's data set deemed to be a multivariate outlier. Consequently, no cases were removed from the data set prior to the following analyses.

Linearity

Linearity occurs when a linear relationship exists between the independent and dependent variables in the dataset. This assumption was evaluated by visually inspecting a scatter plot with the unstandardized residuals on the *x*-axis and the unstandardized predicted values on the *y*-axis. Eighteen different scatter plots were created to examine the various relationships between the independent and dependent variables within the two samples (patients and partners) for the

current study. Once the scatter plots were created through *SPSS 24*, loess lines (also known as locally weighted smoothing lines) were added to plots. Loess lines are best fit lines between the data points which help in visually depicting the relationships between the variables. If a bend is detected in the residual plot, the linearity assumption is concluded to be violated. In the current data set, no bends were detected in the residual plots created. Thus, the linearity assumption was upheld.

Homoscedasticity

The assumption of homoscedasticity asserts "the variance of the residuals at every set of values for the independent variable is equal" (Miles & Shevlin, 2006, p. 99). This assumption is important to explore before conducting primary analyses, as the standard errors will be biased if the assumption is violated. These biased standard error scores may lead to incorrect significance tests if left uncorrected. Examining the assumption of homoscedasticity requires the same steps as the linearity assumption in that researchers create scatter plots of the unstandardized residuals on the *x*-axis and the unstandardized predicted values on the *y*-axis. These plots are then visually inspected to determine whether the variance of the residuals is equal across all distributions of the predicted values. The presence of heteroscedasticity (or the violation of the homoscedasticity assumption) can be detected when the data points on the scatter plot are not uniformly distributed. Based on the inspection of the residual scatter plots created for the current dataset, the assumption of homoscedasticity was confirmed.

Multicollinearity

Multicollinearity occurs when two independent variables in a model are too closely, or perfectly, correlated (Miles & Shevlin, 2006). Most researchers use the tolerance statistic,

variance inflation factor statistic, and Pearson product-moment correlation tables to detect multicollinearity between study variables.

The tolerance calculation examines "the extent to which that independent variable cannot be predicted by the other independent variables" (Miles & Shevlin, 2006). The computation for tolerance is $1 - R^2$, where the variable of interest is considered the dependent variable in the model and the other study variables in the dataset are considered the predictors. The tolerance statistic ranges from 0 (completely dependent) to 1 (completely independent), with a criterion of at least 0.1 needed to demonstrate variable independence (Tabachnick & Fidell, 2001). All of the variables in the dataset exceeded the 0.1 criterion and were deemed independent.

For additional analysis of the multicollinearity assumption, the variance inflation factor (VIF) values were also examined. This is only necessary in datasets which include more than two independent variables. The computation for the VIF is as follows: $\frac{1}{\text{tolerance}}$

The criterion for the VIF value is less than 2 (Miles & Shevlin, 2006). None of the relationships in the current study's dataset reached the criterion value of 2. Thus, the results provide additional evidence that the assumption of multicollinearity was met.

Finally, I also examined the bivariate correlations between the variables in the dataset. See Table 4.5 for the *r*-values and associated significance levels. Previous research suggests that bivariate correlations which are greater than .9 are highly likely to demonstrate a violation of the multicollinearity assumption (Grewal, Cote, & Baumgartner, 2004). The results of the correlation analyses suggest the largest association between study variables was .63 (between partners' perceptions of support seeking and their caregiver burden). Taken together, these results provide evidence that the assumption of multicollinearity was not violated in the current study.

Table 4.5

Bivariate correlations between study variables

	Variable	1	2	3	4	5	6	7	8	9
1	Support Seeking (R)	1	-.32**	.62**	.21**	.12	-.20**	.26**	.33**	-.01
2	Support Quality (P)		1	-.55**	.32**	-.09	.60**	.29**	-.36**	.25**
3	Caregiver Burden (R)			1	-.06	.27**	-.47**	-.07	.49**	-.28**
4	Relational Satisfaction (P)				1	-.12	.06	.66**	-.15**	.04
5	Psychological Distress (P)					1	-.02	-.16*	.36**	-.01
6	Subjective Health (P)						1	.14*	-.22**	.58**
7	Relational Satisfaction (R)							1	-.20**	-.02
8	Psychological Distress (R)								1	-.05
9	Subjective Health (R)									1

Note. P = Patient Perspective R = Romantic Partner Perspective * $p < .05$ ** $p < .01$

PRIMARY ANALYSES

Structural Equation Modeling

The current study used structural equation modeling which is "a collection of statistical techniques that allow a set of relations between one or more independent variables (IVs)…and one or more dependent variables…to be examined" (Ullman, 2006). More specifically, structural equation modeling allows for the examination of the measurement model, or a validation of the study's measures, through confirmatory factor analysis prior to exploring how well the relationships between the latent variables in the study fit the data. This is important, because other analyses (i.e., multiple regression) do not account for measurement error (Schumacker & Lomax, 2010). SEM was the appropriate analysis choice for the current study, because it allows for the simultaneous examination of both direct paths and mediation models between various latent constructs while taking into account error at the measurement model level (Stage, Carter, & Nora, 2004). Structural equation modeling is conducted through the following process: 1) specifying the model, 2) model identification, 3) estimating the model, 4) testing the model, and 5) model modification (Crockett, 2012). The section which follows will discuss each of these stages as well as how I implemented each of these stages in the current study. However, I will first begin by discussing the sample size in the current study as the test of model fit is largely dependent on the sample size (Bollen, 1990).

Sample Size and Power

Sample size and power to detect significance levels are intricately related. Having an insufficient sample size "means… you may not be able to detect associations that are present in the population and you might thereby reach the conclusion that variables are not related when in fact they are indeed related" (Miles & Shevlin, 2006, p. 118). The sample size in the current

study (n = 229) is adequate for the statistical analyses performed in the current study based on the recommendations of Tabachnick and Fidell (2001), who argued data should be collected from at least ten people for each parameter estimated in a structural model. The proposed model estimated 18 parameters including nine direct effects and six error terms for each dependent variable. Additionally, due to the dyadic nature of the data and Cook and Kenny's (2005) assertion that "observations of two individuals are linked or correlated such that knowledge of one person's score provides information about the other person's score" (p. 201), patient and partner outcomes were correlated in the proposed model. For example, romantic partners' perceptions of relational satisfaction may be correlated. To account for these correlations, three covariances were added to the model for patients' and partners' psychological distress, relational satisfaction, and subjective health. Thus, a minimum of 180 couples would be needed to estimate these parameters and establish a good-fitting model. Further, previous researchers have suggested that a sample size of at least 200 participants (Bollen, 1990; Kline, 2010; Pruzek & Boomsma, 1984) is needed to examine the goodness-of-fit for a model. Therefore, the sample in the current study (n = 229 couples) is adequate for model testing.

Model Specification

Model specification requires researchers to examine theory and the current literature to propose hypothesized relationships between the latent constructs of interest (Cooley, 1978). Additionally, researchers visually depict these relationships through a path diagram. See Figure 4.1 (Crocket, 2012) for a list of common symbols used in path diagrams.

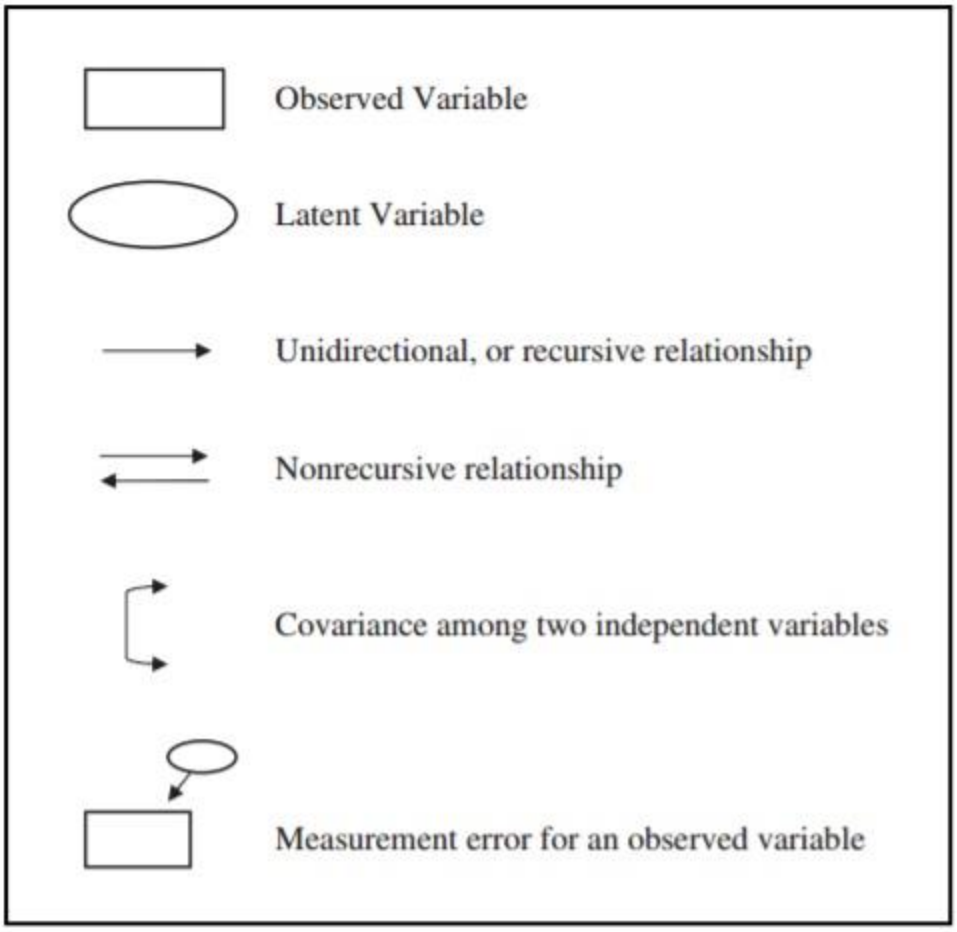

Figure 4.1. Visual Representations of Path Analysis (Crockett, 2012)

Model specification in the current study was applied by carefully considering various theories and areas of research. For instance, the hypotheses and research questions posed in the current study were developed to reflect the theory of illness trajectories (Corbin & Strauss, 1985; 1988), facework and politeness theory (Brown & Levinson, 1987; Goffman, 1967), and the stress adaptation model (Lazarus & Folkman, 1984) as well as a broad understanding of the social support literature and the implications supportive communication may have on psychosocial outcomes for patients and their loved ones. Please see Figure 4.2 for the path diagram in the current study.

Model specification also involves a two-step process identified by Anderson and Gerbing (1988) wherein 1) the researcher specifies which items load on which latent factors and 2) the researcher specifies relationships between the latent factors. Please see Chapter 3 and Appendices C-I for more information regarding the items that loaded onto each latent factor in the current study. Once the measurement model is deemed to have good fit, meaning "the latent constructs in the measurement model are adequately measured by the observed variables" (Crockett, 2012, p. 35), the researcher can then proceed to the specification of the structural model. In specifying the structural level of the model, the researcher needs to 1) identify the direction of the relationships between the latent constructs, and 2) indicate whether the parameters should be fixed or free to vary (Garson, 2015). A parameter is considered to be fixed when they are constrained to a specific value (generally a 0 or 1), whereas a parameter is considered to be free to vary when the model allows for variance among the relationships between study variables. At the structural level, I specified nine direct effects, six indirect effects, and three covariance paths between the outcomes. All of the parameters were free to vary in the current study.

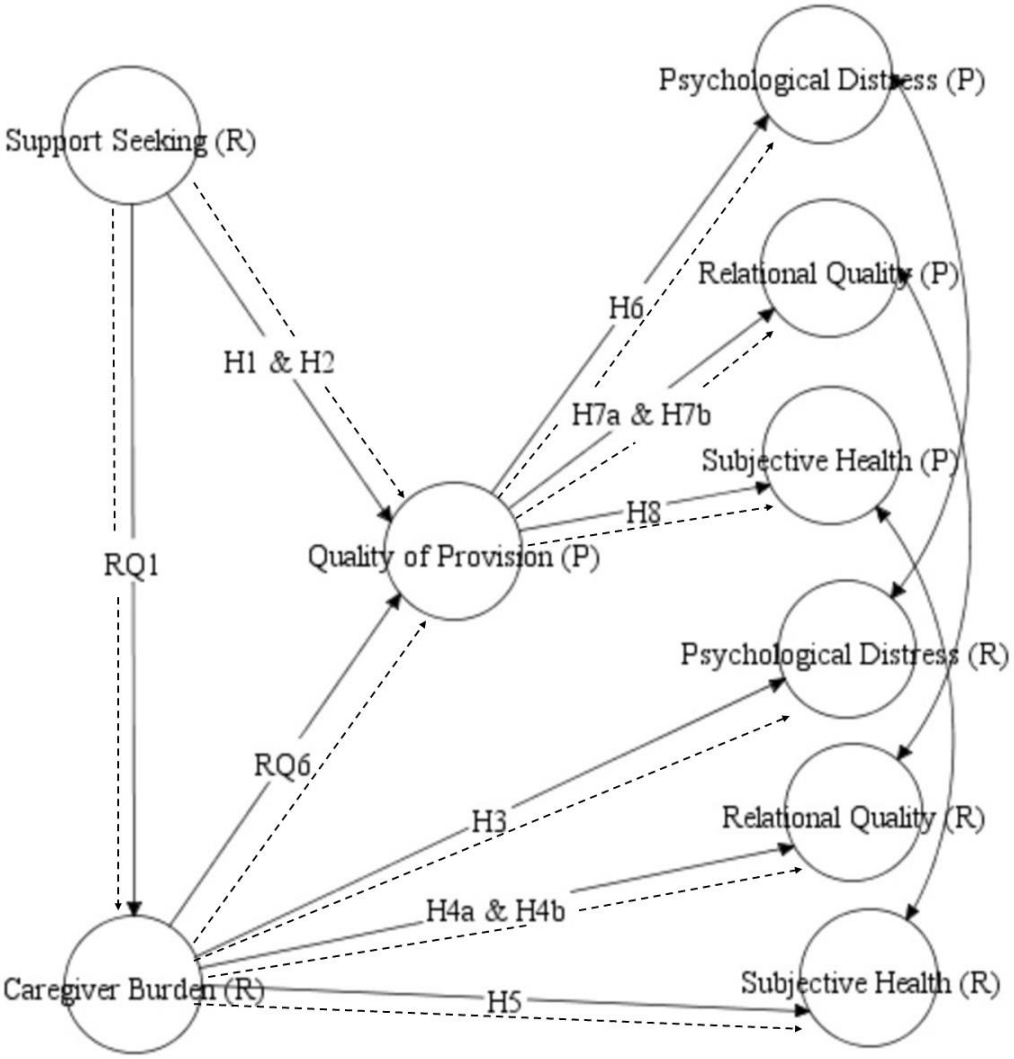

Figure 4.2. Path Diagram of Proposed Structural Model
Note: The (P) designates the patient perspective, while the (R) designates the romantic partner perspective.

Model Identification

Model identification involves determining whether standardized models are under, over, or just-identified. Just-identified models are ones in which the number of unique pieces of information in the covariance matrix is equal to the number of parameters in the model. Under-identified models are those in which the number of unique pieces of information in the covariance matrix is fewer than the number of parameters requiring estimation. Finally, over-identified models are ones in which the number of unique pieces of information in the covariance matrix is greater than the number of parameters requiring estimation. In order to conduct structural equation modeling analyses, models must be over-identified.

The *t*-rule is typically used to determine whether a model is under-, over-, or just-identified. More specifically, the *t*-rule asserts that to be an over-identified model, there must be more known than unknown parameters (Crockett, 2012). The *t*-rule is computed using the following equation: $p(p\text{-}1)/2$ wherein p is the number of observable variables. Once this value is calculated, the researcher must compare this to the number of paths estimated in the model. In the current study, I examined relationships between nine latent variables. The *t*-rule calculation for the hypothesized model was $9(9\text{-}1)/2 = 36$. Because I estimated 12 paths between the latent variables, the theoretical model was deemed to be over-estimated. Once a model is considered to be over-identified, the researcher may proceed with the following stages of structural equation modeling: model estimation, model testing, and model modification.

Model Estimation

The third stage of structural equation modeling "involves estimating the parameters of the theoretical model in such a way that the theoretical parameter values yield a covariance matrix as close as possible to the observed covariance matrix *S*" (Crockett, 2012, p. 38). Model estimation

is achieved through the MPlus software which attempts to minimize differences between the hypothesized model and the observed data through various iterations. MPlus uses maximum likelihood (ML) estimation which is the most commonly used estimation (Kelloway, 1998). ML estimation is beneficial, because it can accommodate missing data and produces unbiased and consistent estimations especially in larger sample sizes (Bollen, 1989; Kelloway, 1998; Schumacker & Lomax, 2010). ML estimation assumes multivariate normality, and based on the examination of the Mahalanobis distance scores and accompanying Chi-square critical values in the preliminary analyses, this was deemed an appropriate estimation procedure for the current study.

Model Testing and Modification

As mentioned earlier, model testing involves the two step-process identified by Anderson and Gerbing (1988). First, researchers must examine the measurement model by conducting a confirmatory factor analysis. MPlus creates an output with several model fit indices which provide information regarding "how well the proposed interrelationships between the variables match the interrelationships between the actual or observed interrelationships" (Meyer, Gamst, & Guarino, 2006, p. 558). The fit indices produced in MPlus include the maximum likelihood chi-square statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), Steiger and Lind's root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Per the recommendations of Hu and Bentler (1999), a structural model is determined to have good fit if it meets the joint criteria of RMSEA ≤ 0.06 and SRMR ≤ 0.10 or CFI ≥ 0.96 and SRMR ≤ 0.10. Additionally, TLI test statistics closer to 1 are indicative of good fit (Crockett, 2012). Once the measurement model has been deemed to fit the data well, the researcher may examine the significance of the paths in the hypothesized structural model.

Model fit indices are also inspected at the structural level to insure the theoretical model proposed in the study fit the sample's data well.

If the model fit indices suggest that the hypothesized structural model does not fit the sample's data well, researchers must respecify the model. Thus, the final step in conducting a structural equation model is to examine whether the model needs modification. Model modification entails either iteratively removing paths from or adding paths to the theoretical model. The most common method for identifying paths to iteratively remove is to examine the significance level for each path in the model (Schumacker & Lomax, 2010). Consequently, many researchers will remove non-significant paths in the model. However, scholars have warned that although this procedure may aid in producing better model fit indices, removing these paths may bias the results (Goodboy & Kline, 2017; Kelloway, 1998). In other words, model modifications "are based on the sample data instead of previous theory and research, as a result parameters eliminated from the theoretical model may reflect sample characteristics that do not generalize to the broader population" (Crockett, 2012, p. 43). Therefore, removal of non-significant paths should be done cautiously.

Researchers may also modify the theoretical model through the LaGrange Multiplier (LM) test. This test produces information regarding how much the value of the maximum likelihood chi-square statistic will change when adding the path to the hypothesized model. The output in MPlus also provides information regarding the expected parameter change and the standardized parameter change to the model once the researcher has added the new path. The LM test requires researchers to set a critical value of 3.84 which suggests that freeing the parameter (i.e., adding a new parameter to the model) would be significant at the $p = .05$ level for one degree of freedom. Therefore, the modification index or the value produced in the MPlus

output should exceed the value of 3.84. However, scholars should also be cautious in adding paths to the model and should only do so when these paths are theoretically meaningful (Muthén & Muthén, 1998-2012).

The last component of model modification deals with examining the differences in the nested models, or between the original hypothesized model and the respecified model which includes the removed non-significant paths and/or added paths based on modification indices. Models are considered to be nested when both include the same estimated parameters. However, the alternative model must include at least one additional parameter and thus, will have fewer degrees of freedom. A chi-square difference test is typically used to determine which model fits the data better. This requires the researcher to subtract the maximum likelihood chi-square statistics and the degrees of freedom. These values are then compared to a chi-square critical value table to determine significance level. In cases in which the $\Delta\chi 2$ test is not significant, Kline (2010) suggests researchers retain the more parsimonious model or the model with fewer parameters estimated. An insignificant chi-square difference test suggests that "both models fit equally well statistically" (Werner & Schermelleh-Engel, 2010, p. 3). Thus, retaining the more parsimonious model is recommended in these cases.

To review, model testing includes a two-step process by which researchers will examine the model fit indices of the measurement level model prior to exploring whether the hypothesized model fit the data well. Once these two models have been examined, the researcher must cautiously decide whether to modify the model based on the modification indices and theoretical implications. The following section will describe the results of the model testing and model modification for the current study.

Current Study's Model Testing and Modification

In the current study, MPlus 7.0 (Muthén & Muthén, 1998-2012) was used to run confirmatory factor analyses on all latent measures of the variables followed by a structural equation model to test the hypotheses of interest. First, a one-factor model constraining all items to load on one underlying construct was compared to a nine-factor model allowing each item to load on its intended construct. This procedure compared the two models to ensure the nine-factor model fit the data better than the one factor model and to provide evidence that the possibility of common-method variance, or the spurious association between latent constructs due to common measurement technique, was minimal (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Due to linear dependency among the partner and patient outcomes (i.e., relational satisfaction, psychological distress, subjective health), the models would not converge. Linear dependency occurs when two variables are too highly correlated (Wothke, 1993) and can occur when the same variables were measured from partners in the same dyad. Thus, two separate models were created – one with patient outcomes and one with partner outcomes – for all of the primary analyses in the current study. The maximum likelihood chi-square statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), test statistic, Steiger and Lind's root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR) were used for model fit indices in the current study. As mentioned previously, the recommendations of Hu and Bentler (1999) were used to determine goodness-of-fit for the models in the current study. Therefore, the joint criteria of RMSEA ≤ 0.06 and SRMR ≤ 0.10 or CFI ≥ 0.96 and SRMR ≤ 0.10 were used to evaluate good model fit.

Patient Outcomes Model – Confirmatory Factor Analysis

The patient model included the following variables: 1) partners' perceptions of patients' frequency of support seeking, 2) patients' perceptions of partners' quality of support provision, 3) patient relational satisfaction and 4) psychological distress. As subjective health was measured through a one-item global scale, it was not included in the measurement model. However, previous research has demonstrated global items are at least as valid as multi-item scales (Bergkvist & Rossiter, 2009) and Fayers and Sprangers (2002) asserted that single-item measures of subjective health (operationalized via health status and health-related quality of life) were more accurately measured than multi-item constructs when used as outcome variables. Therefore, there is support for the decision to retain the global subjective health item in the subsequent structural models reported in the current study.

To examine the potential of common-method variance and to explore the scale validity for the patient data, two separate models – one with a one-factor solution and one with a four-factor solution – were examined. Common-method variance occurs when using a common measurement technique (i.e., survey items) creates a spurious relationship between latent variables (Podsakoff, et al., 2003). As anticipated, the first model containing the one-factor solution did not fit the patient data well: $\chi^2 = (629) = 2108.96$, $p < .001$, RMSEA = .10, SRMR = .13, CFI = .36, TLI = .32. The four-factor solution fit the patient data better: $\chi^2 = (623) = 984.45$, $p < .001$, RMSEA = .05, SRMR = .08, CFI = .84, TLI = .83.

However, only two of the four fit indices suggested the four-factor solution fit the data well. Thus, following the recommendations of (Kline, 2010) and based on the modification indices provided in the output, nine paths were iteratively added to the model. Specifically, these paths set residual terms of items on the same scale to covary. For instance, the modification

indices suggested adding a covariance path between the following items on the patient psychological distress measure: "Did you feel that everything was an effort?" and "Did you feel tired out for no good reason?" The decision to covary these error terms was based on the theoretical reasoning that participants would likely respond to these items similarly as psychological distress often manifests through feeling tired and exhausted (Kessler et al., 2002).

After adding these paths, the model fit the data well: $\chi^2 = (614) = 860.34$, $p < .001$, RMSEA = .04, SRMR = .07, CFI = .89, TLI = .88. Although two of the fit indices did not meet their threshold (CFI = .90, TLI = .90), the model did meet the joint criteria identified by Hu and Bentler (1999) for retaining a model: RMSEA ≤ .06 and SRMR ≤ .10. Hu and Bentler (1999) assert that using these joint criteria minimize both the threats of Type I error (retaining a misspecified model) and Type II error (rejecting a correctly specified model). Thus, based on the fit indices reported above and Hu and Bentler's (1999) criteria, the model is deemed to have adequate fit.

Because the initial model with one-factor is nested in the model with four-factors, I conducted a chi-square difference test, to determine whether the differences were statistically significant. In cases in which the $\Delta\chi^2$ test is significant, Kline (2010) suggests researchers retain the less parsimonious model as the significant test indicates the model with more parameters estimated has significantly more explanatory power than the smaller model. However, it is important to note that larger sample sizes can falsely indicate a significant difference between the nested models. Therefore, researchers should carefully examine the necessity of and the theoretical reasoning behind adding parameters to the model prior to accepting either the larger (more parameters estimated) or smaller (fewer parameters estimated) model.

The difference test in the current study suggested there was a statistically significant difference between the two models: $\Delta\chi^2 = 1248.62$, $\Delta df = 15$, $p < .001$. Per Kline's (2010) recommendations, and based on the adequate sample size in the current study and the theoretical reasoning that the items included in the current study should load onto four-factors as opposed to a one-factor solution, the larger model was retained. Please see Figure 4.3 for the final measurement model including patient outcomes.

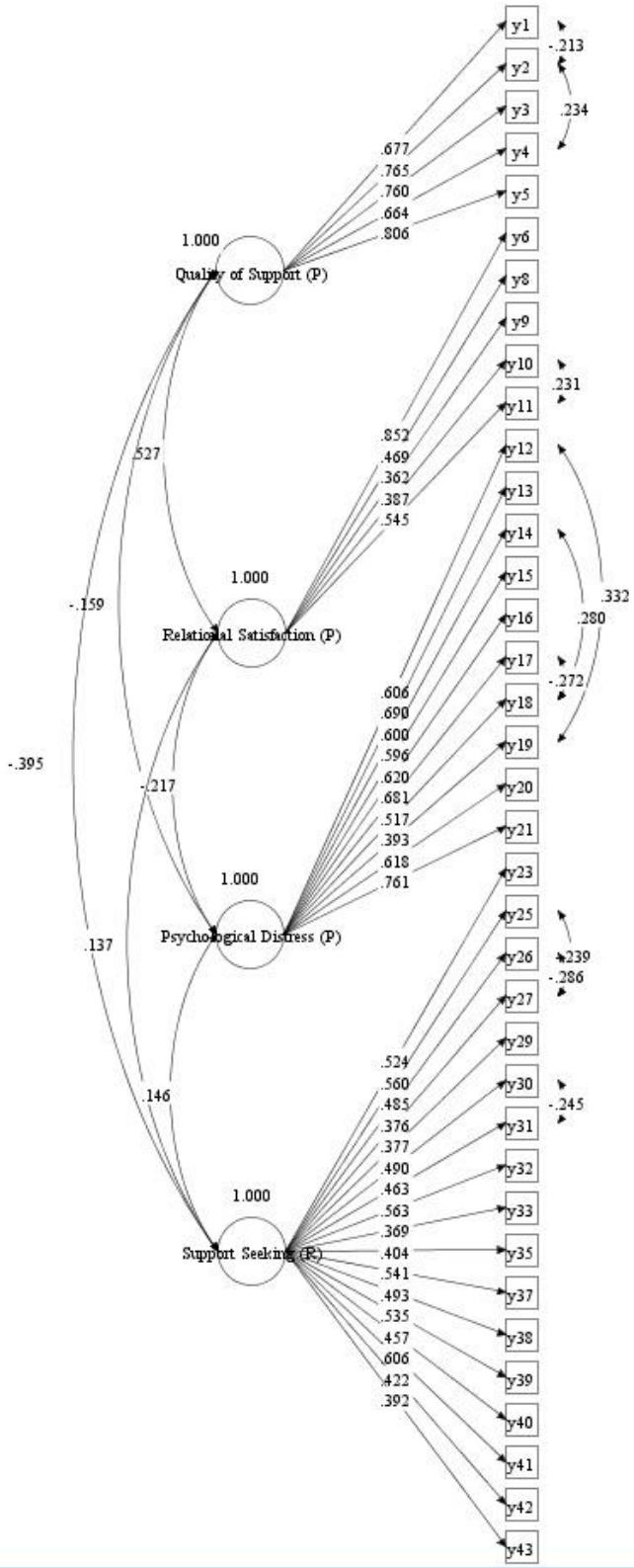

Figure 4.3. Final Measurement Model for Patient Outcomes

Partner Outcomes Model – Confirmatory Factor Analysis

The partner model included the following variables: 1) partners' perceptions of patients' frequency of support seeking, 2) patients' perceptions of partners' quality of support provision, 3) partners' caregiver burden, 4) partners' psychological distress, and 5) partners' relational satisfaction. Subjective health was not included in the measurement model due to low reliability estimates from the multi-item scale. Thus, a single global item from the subjective health scale served as the observed dependent variable, and this variable was not introduced until the structural level.

In order to ensure the association between latent constructs is due to actual relationships among the variables and not because of common measurement technique (Podsakoff, et al., 2003) two separate models – one with a one-factor solution and one with a five-factor solution – were examined in relation to confirmatory factor analyses. The one-factor model did not fit the partner data well: $\chi^2 = (1224) = 2729.75$, $p < .001$, RMSEA = .07, SRMR = .09, CFI = .59, TLI = .57. The five-factor solution, on the other hand, demonstrated better fit: $\chi^2 = (1214) = 1763.00$, $p < .001$, RMSEA = .04, SRMR = .06, CFI = .85, TLI = .84.

Although the initial five-factor model fit the partner data well, the modification indices suggested adding seven covariance paths between error terms for items from the same scales which were similarly phrased. For instance, I added a correlation path between the following items based on the modification indices on the output: "I feel angry about my loved one's illness" and "This illness affects my relationships with others." These covariance paths were added to the model based on the assertion that participants likely responded to the items very similarly as negative emotions toward relational partners is likely also to affect the quality of that

relationship. The respecified model also demonstrated better fit: $\chi^2 = (1207) = 1662.20$, $p < .001$, RMSEA = .0, SRMR = .06, CFI = .88, TLI = .87.

As the revised model is nested in the initial, hypothesized model, I conducted a chi-square difference test, to compare the two models (one-factor solution vs. five-factor solution). As mentioned previously, if the $\Delta\chi^2$ test is significant, this will indicate the revised model was significantly different from the initial, hypothesized model. In these cases, Kline (2010) suggests researchers retain the larger model or the model with more paths estimated (revised model). The results of the difference test are as follows: $\Delta\chi^2 = 1067.55$, $\Delta df = 17$, $p < .001$. As the results suggested that the model with additional parameters estimated had significantly more explanatory power and based on the reasoning that the items included in the model should load on four separate factors as opposed to one, the five-factor solution was retained. Please see Figure 4.4 for the final measurement model including partner outcomes.

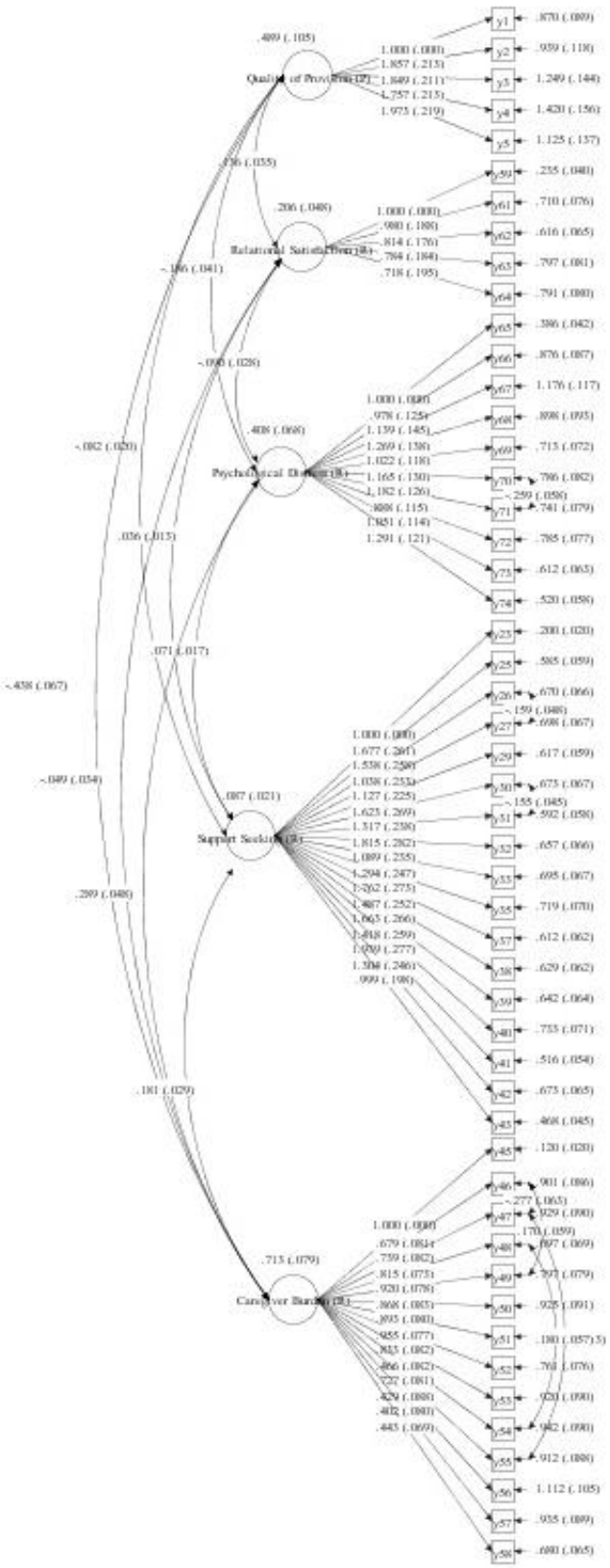

Figure 4.4. Final Measurement Model for Partner Outcomes

Patient Outcomes Model – Structural Equation Model

Based on the recommendations of Anderson and Gerbring (1988), the next step in model testing is to examine the structural level of the model. Please see Table 4.6 for the hypotheses and research questions examined through the structural model related to patient outcomes.

Table 4.6

Paths in the Patient Structural Model

H/RQ
H1: Partners' perceptions of patients' frequency of support seeking will be negatively associated with patients' perceptions of their partners' quality of support provision.
H2: Partners' perceptions of patients' frequency of support seeking will be positively associated with patients' perceptions of their partners' quality of social support provision.
H6: Patients' perceptions of their partners' quality of support provision will be negatively related to their psychological distress.
H7: Patients' perceptions of their partners' quality of support provision will be negatively related to their relational satisfaction.
H8: Patients' perceptions of their partners' quality of support provision will be negatively related to their subjective health.
RQ7: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' psychological distress via patients' perceptions of their partners' quality of support provision?
RQ8: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' relational satisfaction via patients' perceptions of their partners' quality of support provision?
RQ9: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' subjective physical health via patients' perceptions of their partners' quality of support provision?

Note. H7a was relabeled H7 and RQ8a was relabeled RQ8 after H7b and RQ7b were removed.

Model testing at the structural level involves examining the hypothesized paths proposed in the model specification stage. Please see Figure 4.5 for the revised hypothesized model for patient outcomes only. The structural model exploring the research questions and hypotheses in the model demonstrated moderate fit: χ^2 (649) = 937.75, $p < .001$, RMSEA = .04, SRMR = .08, CFI = .88, TLI = .87.

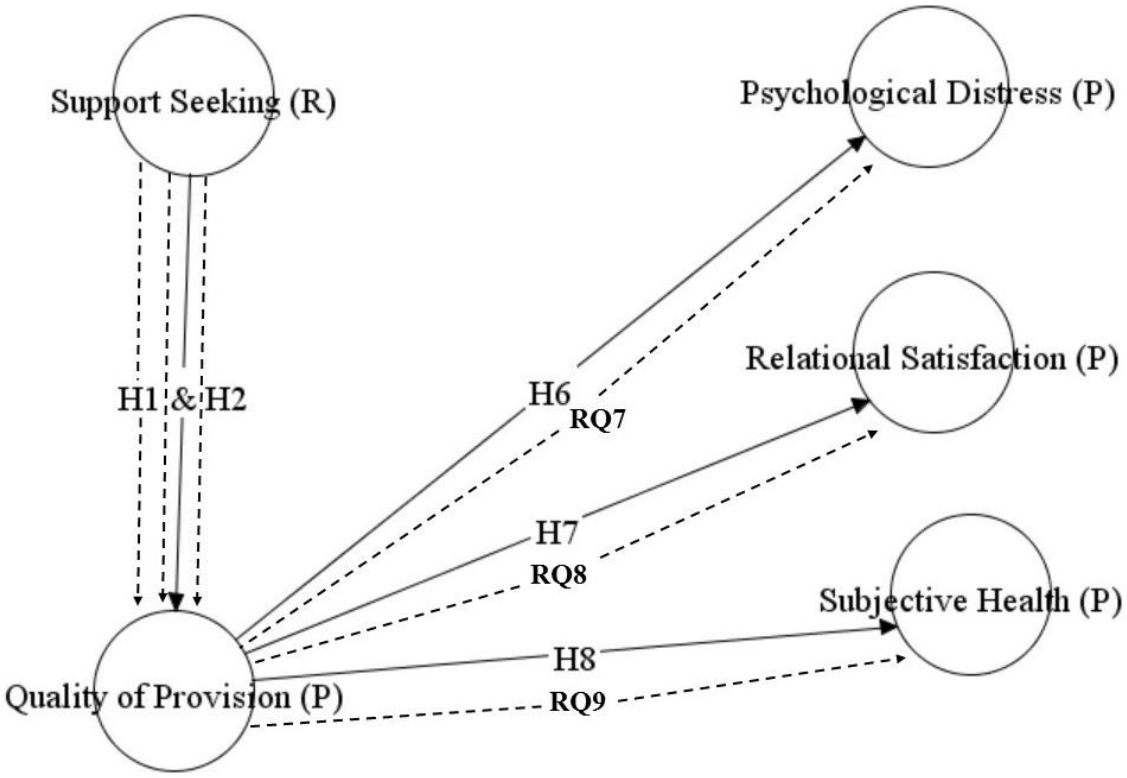

Figure 4.5. Hypothesized Structural Model for Patient Outcomes

Due to the fit of the model, modification indices were examined for respecification. It is important to cautiously add or remove paths from the model. Specifically, researchers should only add or remove paths from the model if there is a theoretically meaningful reason to do so. Thus, based on the recommendations of Kline (2010) and Goodboy and Kline (2017), I

iteratively added paths to the model based on theoretically meaningful relationships. Consequently, one direct effect was added from partners' perceptions of patients' frequency of support seeking to patients' relational satisfaction ($\beta = .38$, $p < .001$). Adding this path is warranted as partners' perceptions of how frequency patients seek support from them may influence how satisfied the patient is in the relationship especially if the partner provides quality support in return to these supportive requests. Further, as Goodboy and Kline (2017) warn removing theoretically related paths is problematic for replication of findings, the non-significant path in the model was retained. The final model demonstrated good fit: χ^2 (648) = 904.09, $p < .001$, RMSEA = .04, SRMR = .08, CFI = .90, TLI = .89.

The following section will provide a discussion of the results for each hypothesis and research question posed. Therefore, each direct path and indirect effect in the model will be described below. Please see Figure 4.6 for the final structural model.

Results of Patient Outcomes Model Testing

Hypotheses one and two predicted competing relationships between partners' perceptions of patients' support seeking attempts and patients' perceptions of their partners' quality of support provision. Results from the path analysis suggested that partners' perceptions of patients' support seeking attempts was significantly and negatively associated with the patients' perceptions of their partners' quality of support provision ($\beta = -.42$, $p < .01$). These results provided support for H1 and suggest as frequency of support seeking increases by 1 SD unit, the quality of support provision is predicted to decrease by .42 SD units.

Hypothesis six predicted that patients' perceptions of their partners' quality of support provision would be negatively associated with their psychological distress. This path was not statistically significant in the model ($\beta = -.16$, $p = .13$) suggesting that H6 was not supported.

However, Goodboy and Kline (2017), assert that "if a path was theoretically justified in the first place, then it should be retained regardless of whether its coefficient is significant or not" (p. 73). Therefore, the path was retained in the final structural model (although not pictured in the figure below).

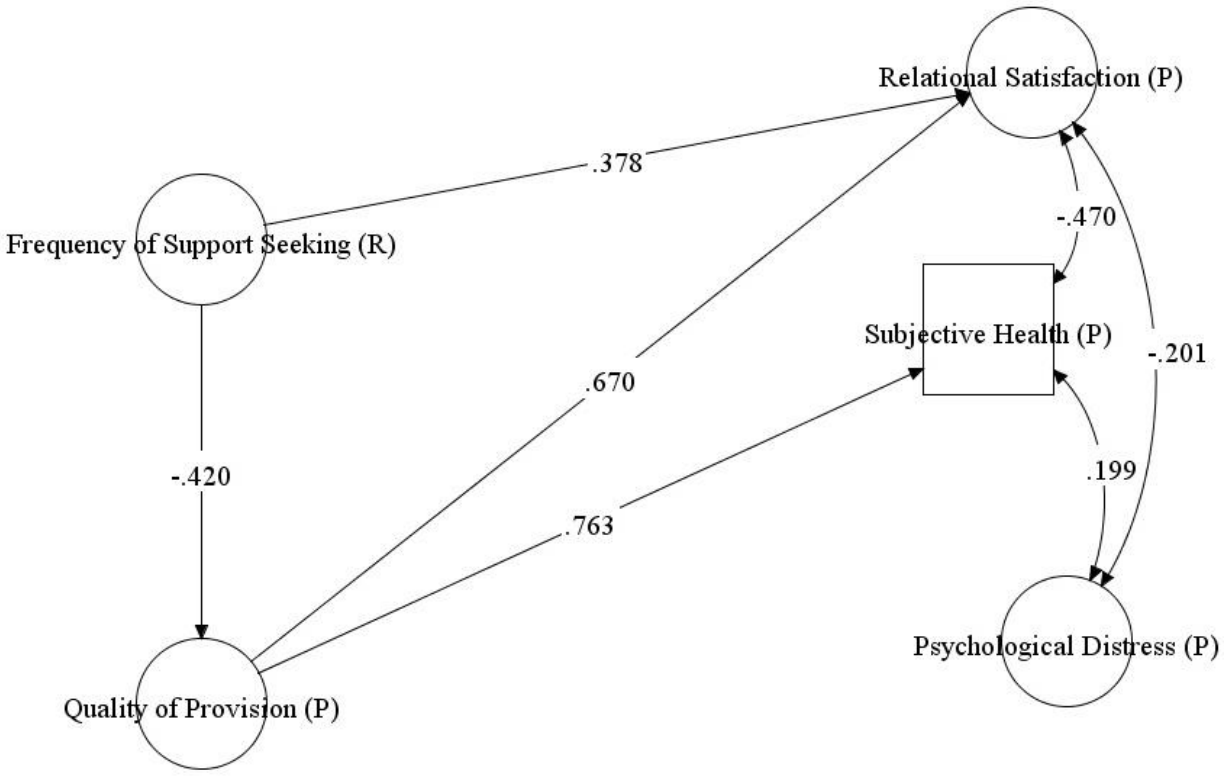

Figure 4.6. Final Patient Structural Model with Significant Paths

Hypothesis seven predicted that patients' perceptions of their partners' quality of support provision would be positively associated with their relational satisfaction. The path was significant in the model ($\beta = .67$, $p < .001$) which supported H7. This result suggested that as patients' perceptions of the quality of partners' support provision increased by 1 SD units, their relational satisfaction was predicted to increase by .67 SD units.

Hypothesis eight examined the relationship between patients' perceptions of their partners' quality of support provision and patients' subjective physiological health. Results from the structural equation model supported H8 ($\beta = .76$, $p < .001$). This finding suggested that as patients' perceptions of their quality of support provision increased by 1 SD unit, their subjective physiological health was predicted to increase by .76 SD units.

Standardized R^2 values were utilized to determine how much of the variance in each dependent factor in the model was explained by the paths leading up to the variable. Bollen (1989) asserts that a standardized R^2 coefficient of 0.30 represents a meaningful amount of variance explained; this would suggest that 30% of the factor's variance is explained by the paths in the model. Please see Table 4.7 for a list of the R^2 values for each dependent variable in the patient model.

Table 4.7

Standardized R^2 Values for Patient Model

Dependent Variable of Interest	*R^2 Value*
Quality of Support Provision (P)	.18
Relational Satisfaction (P)	.38
Psychological Distress (P)	.03

Three research questions were posed to explore the following indirect effects: patients' perceptions of quality of support provision mediates the relationship between partners' perceptions of patients' support seeking attempts and RQ7) patients' psychological distress, RQ8) patients' relational satisfaction, and RQ9) patients' subjective physiological health.

Per Hayes' (2009) recommendation, the research questions were investigated using a bootstrapping method wherein resampling (n = 1000) was conducted to provide an appropriate estimation of the 95% confidence intervals around the sum of the indirect effects (Preacher & Hayes, 2008). Previous research has demonstrated that this is a more robust procedure than the Sobel test or traditional four-step process (e.g., Baron & Kenny, 1986; MacKinnon, Lockwood, & Williams, 2004; Williams & MacKinnon, 2008). Bias-corrected and accelerated confidence intervals (BCaCIs) were reported in the current study as MacKinnon and colleagues (2004) have demonstrated BCaCIs are the most valid for testing indirect effects. Please see Table 4.8 for the results of the tests of the indirect associations related to RQ7-RQ9.

Results of RQ7 were not significant. Patients' perceptions of partners' quality of support provision did not mediate the relationship between partners' perceptions of patients' frequency of support seeking attempts and patients' psychological distress (.07, p = .20, 95% BCa CI: .00, .18). Therefore, there was no support for RQ7 in the current study.

Results of RQ8 suggested the indirect effect of partners' perceptions of patients' frequency of support seeking attempts and patients' relational satisfaction via patients' perceptions of partners' quality of support provision was significant. The magnitude of the indirect path was -.28 (p < .01, 95% BCa CI: -.15, -.62). This significant path suggested that as partners' perceptions of patients' frequency of support seeking increased, patients' perceptions of partners' quality of support provision was predicted to decrease. In turn, patients' satisfaction was predicted to have a positive association with patients' perceptions of partners' quality of support provision.

RQ9 explored the path from partners' perceptions of patients' frequency of support seeking to patients' subjective physiological health via patients' perceptions of quality of support

provision. Results suggested this indirect effect was significant: -.32 (p = .001, 95% BCaCI: -.13, -.38). The indirect effect indicated that a negative association was found between partners' perceptions of patients' frequency of support seeking and patients' perceptions of partners' quality of support provision. In turn, patients' subjective physiological health and their perceptions of their partners' quality of support provision were positively associated in the current study.

Table 4.8

Path Coefficients and Significance Levels for Indirect Effects in Patient Model.

Parameter Estimated	*β (SE)*	*C.I.*	*p*
RQ7: Support Seeking ⟶ Quality of Provision ⟶ Relational Satisfaction	-.28 (.11)	-.62, -.15	.01
RQ8: Support Seeking ⟶ Quality of Provision ⟶ Psychological Distress	.07 (.05)	.00, .18	.20
RQ9: Support Seeking ⟶ Quality of Provision ⟶ Subjective Health	-.32 (.09)	-.38, -0.13	.001

Note. C.I. = 95% Confidence Interval of Indirect Effects

Partner Outcomes Model – Structural Equation Modeling

The same procedures conducted for the patient outcomes model was followed for the testing of the structural model including the partner outcomes. For instance, per the recommendations of Anderson and Gerbring (1988), the next step in model testing is to examine the direct and indirect effects posed in the hypothesized model. Please see Table 4.9 for the

hypotheses and research questions examined through the structural model related to patient outcomes.

Table 4.9

Paths in the Partner Structural Model

H/RQ
RQ1: Will partners' perceptions of patients' frequency of support seeking be associated with their caregiver burden?
H3: Partners' caregiver burden will be positively related to their psychological distress.
H4: Partners' caregiver burden will be negatively related to their relational satisfaction.
H5: Partners' caregiver burden will be negatively related to their subjective health.
RQ2: Will partners' perceptions of patients' frequency of support seeking indirectly affect patients' perceptions of their partners' quality of support provision via partners' caregiver burden?
RQ3: Will partners' perceptions of patients' frequency of support seeking indirectly affect their psychological distress via their perceived caregiver burden?
RQ4: Will partners' perceptions of patients' frequency of support seeking indirectly affect their relational satisfaction via their perceived caregiver burden?
RQ5: Will partners' perceptions of patients' frequency of support seeking indirectly affect their subjective health via their perceived caregiver burden?
RQ6: How, if at all, is partners' caregiver burden related to patients' perceptions of their partners' quality of support provision?

Note. H4a and RQ4a were relabeled H4 and RQ4 after removing H4b and RQ4b.

To examine the relationships between the latent variables in the model and the partner outcomes, model testing at the structural level was conducted using MPlus. Please see Figure 4.7 for the revised hypothesized model for partner outcomes only. The structural model

exploring the research questions and hypotheses in the above model demonstrated moderate fit: χ^2 (1255) = 1732.72, $p < .001$, RMSEA = .04, SRMR = .06, CFI = .87, TLI = .86.

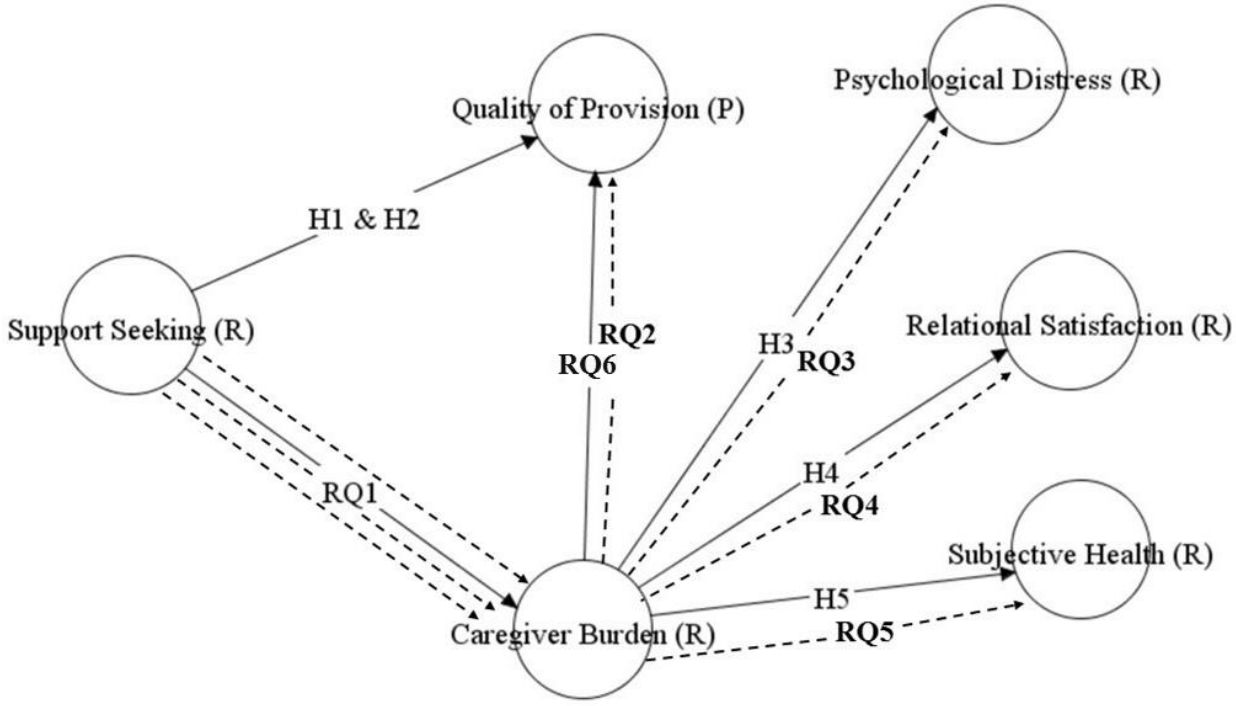

Figure 4.7. Hypothesized Model for Partner Outcomes

As only two model fit indices suggested good fit, a LaGrange Multiplier test was conducted to examine whether any additional paths should be added to the theoretical model. Although adding paths to the model should improve model fit, this should be done cautiously and only when there are theoretical reasons for doing so. Thus, based on the recommendations of Kline (2010) and Goodboy and Kline (2017), I did not add any additional paths to the model. Further, as Goodboy and Kline (2017) warn that removing paths which should theoretically be related is problematic for replication of findings, the non-significant paths were retained in the final model. Please see Figure 4.8 for the final model with partner outcomes.

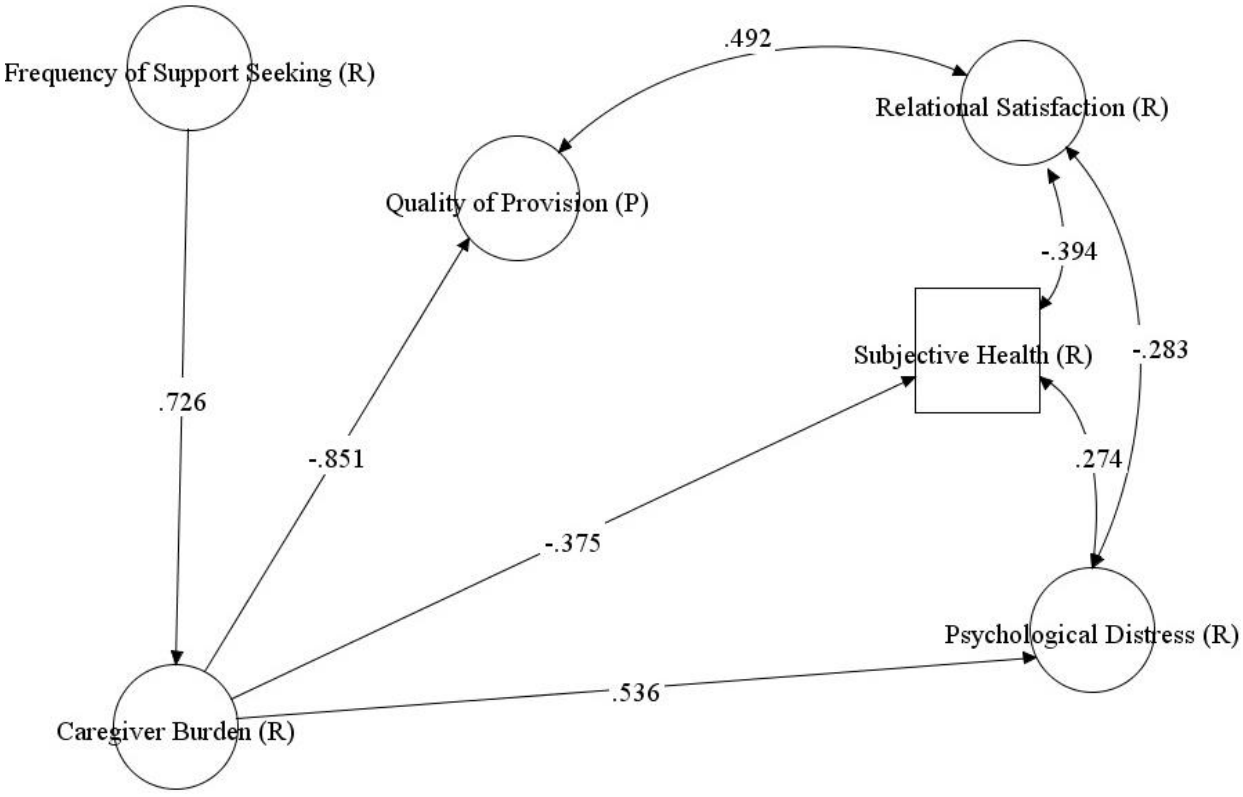

Figure 4.8. Final Partner Model with Significant Paths

Results of Partner Outcomes Model

RQ1 explored whether romantic partners' perceptions of patients' frequency of support seeking attempts would be related to their experience of caregiver burden. Results suggested frequency of support seeking and caregiver burden were positively and significantly associated ($\beta = .73$, $p = .001$) such that a 1 SD unit increase in frequency of support seeking predicted a .73 SD unit increase in caregiver burden.

H3 predicted that partners' experience of caregiver burden would be positively related to their psychological distress. The results supported H3 and suggested that as caregiver burden increases, partners of diagnosed individuals were also likely to experience greater levels of

psychological distress (β = .54, $p < .001$). The standardized estimates indicate that a 1 SD unit increase in caregiver burden predicted a .54 SD unit increase in psychological distress.

H4 proposed a negative association between partners' caregiver burden and their relational satisfaction, but the path was not significant: (β = -.05, $p = .51$). Although the model did not support H4, the non-significant path was left in the model based on the recommendations of Goodboy and Kline (2017).

H5 predicted a negative relationship between partners' caregiver burden and their subjective physiological health. The results of the path analysis were significant: (β = -.38, $p < .001$). This suggested that as caregiver burden increased by 1 SD unit, partners' subjective physical health was predicted to decrease by .38 SD units. Consequently, H5 was supported.

RQ6 explored whether partners' caregiver burden predicted patients' perceptions of their partners' quality of support provision. The model suggested the path was significant: (β = -.85, $p < .001$). The results of the path analysis indicated that as caregiver burden increased by 1 SD unit, patients' perceptions of their partners' quality of support provision was predicted to decrease by .85 SD units.

The standardized R^2 values for each of the dependent variables included in the partner model were also examined (see Table 4.10). Per Bollen's (1989) recommendations, coefficients larger than 0.3 indicated the paths in the model explained a meaningful amount of variance.

Table 4.10

Standardized R^2 Values for Partner Model

Dependent Variable of Interest	*R^2 Value*
Quality of Support Provision (P)	.59
Caregiver Burden (R)	.53
Relational Satisfaction (R)	.21
Psychological Distress (R)	.29

RQ2-5 explored indirect associations of interest. See Table 4.11 for the significant indirect effects. RQ2 examined the indirect association between patients' frequency of support seeking (as perceived by partners) and quality of support provision (as perceived by patients) via partners' caregiver burden. The results of the bootstrapping method indicated this indirect effect was significant: -.70 ($p < .01$, 95% BCaCI: -.80, -3.34). These results suggested that patients' frequency of support seeking positively predicted partners' experience of caregiver burden. In turn, caregiver burden was predicted to be negatively associated with patients' perceptions of quality of support provision, such that increased burden predicted decreased quality of support.

RQ3-5 explored the indirect effects between partners' perceptions of patients' frequency of support seeking and partners' outcomes: 3) psychological distress, 4) relational satisfaction, and 5) subjective physiological health. Results of RQ3 suggest the indirect effect was significant: .39, ($p < .001$, 95% BCaCI: .54, 1.42). This finding suggested that patients' frequency of support seeking positively predicted partners' experience of burden and their psychological distress. Results of RQ4 suggest the mediation path from frequency of support seeking to partners' subjective health via partners' caregiver burden was significant: -.27 ($p <$ .01, 95% BCaCI; -.96, -.24). This finding suggested that patients' frequency of support seeking was positively associated with partners' caregiver burden. In turn, partners' caregiver burden

was negatively associated with their subjective health. RQ5 was not supported in the current study.

Table 4.11

Path Coefficients and Significance Levels for Indirect Effects in Partner Model.

Parameter Estimated	*β (SE)*	*C.I.*	*p*
RQ2: Support Seeking → Caregiver Burden → Quality of Support	-.70 (.22)	-.68, -3.34	.002
RQ3: Support Seeking → Caregiver Burden → Psychological Distress	.85 (.07)	.54, 1.42	.001
RQ4: Support Seeking → Caregiver Burden → Subjective Health	-.27 (.10)	-.20, -0.96	.001

Note. C.I. = 95% Confidence Interval of Indirect Effects

POST HOC ANALYSES

Test of Alternative Model

The last step of structural equation modeling includes testing alternative models at the structural level. This is important to consider, because although the hypothesized models fit the sample data adequately well and the relationships between the variables were in the expected directions, this "does not negate the alternative explanation" (Venetis et al., 2013, p. 93). Further, as relational satisfaction might be a predictor of the support activation and provision occurring between romantic partners managing a rheumatic disorder, an alternative partner outcomes model was tested. Please see Figure 4.9 for the alternative partner model. The relationships between the study variables were all consistent with the hypothesized model with the exception of relational satisfaction. Partners' relational satisfaction was included as the predictor of their own perceptions of the patients' frequency of support seeking.

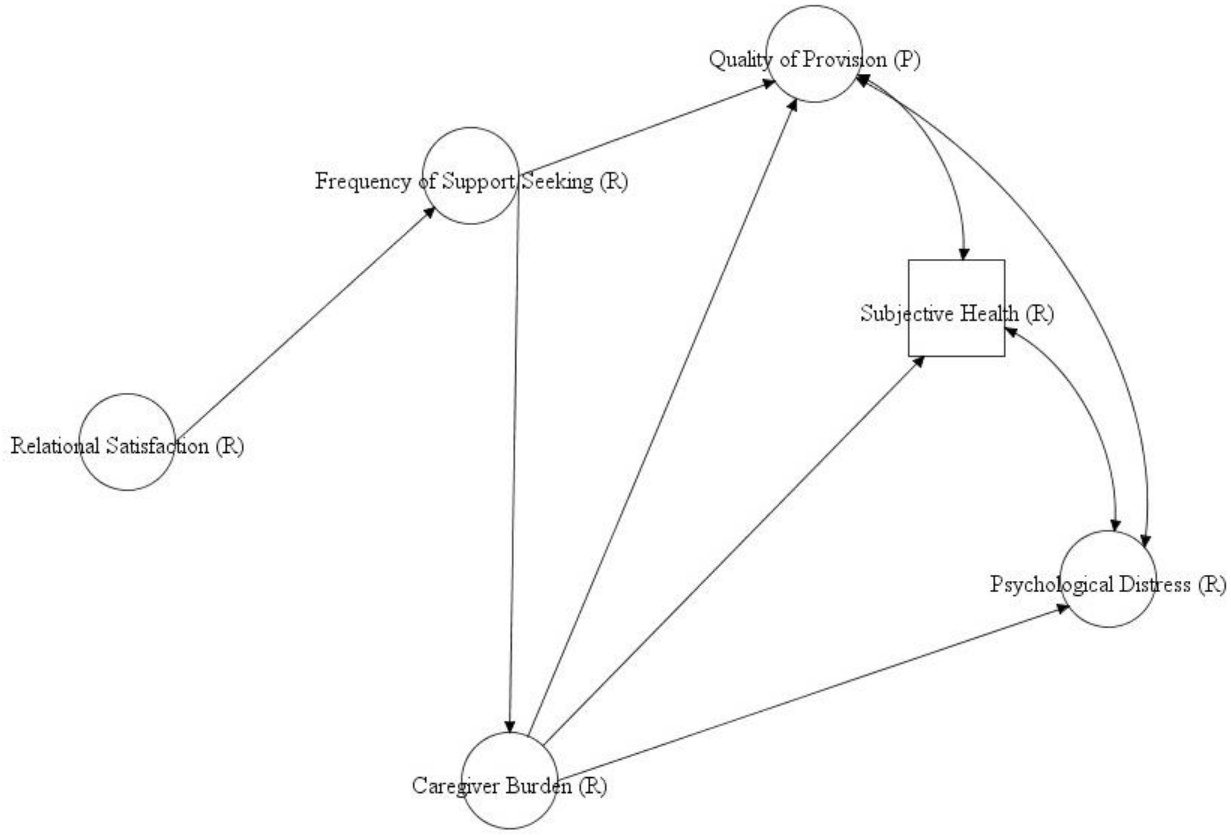

Figure 4.9. Alternative Partner Model

Results of the structural equation model suggest the alternative model fit the data equally as well as the hypothesized model: χ^2 (1258) = 1791.28, $p < .001$, RMSEA = .04, SRMR = .07, CFI = .86, TLI = .85. Although both models fit the data approximately the same, I opted to retain the original hypothesized partner model. This decision was based on two factors. First, as previous interpersonal and health communication scholars have argued, directionality cannot be determined solely by testing alternative models (Venetis et al., 2013). Furthermore, 86% of the partners in the sample reported their relational satisfaction increased as a result of their partners' diagnosis with a rheumatic disorder. Thus, it is reasonable that partners' relational satisfaction may be an outcome of the supportive communication processes enacted.

Discrepancies in Patient-Partner Perceptions

Previous research suggests that romantic partners often have varying perceptions of their enacted communication behaviors in supportive interactions (Niczo & Burgoon, 2008) and in health contexts (Burke & Segrin, 2016; Dailey, Romo, & Thompson, 2011) including during chronic-illness management (Lemay, Pruchno, & Field, 2006). Consequently, I collected data from both patients and partners regarding their perceptions of the frequency of support seeking. Specifically, both patients and partners were asked how frequently the patient sought support from the partner in the areas of illness-management work, biographical work, everyday life work, and communication work. I created an interindividual difference score for each couple in which I subtracted the patient's mean on the support seeking scale developed for this study from the partner's mean on the same scale (Furr & Bacharach, 2013). Negative difference scores between partners' and patients' means were kept in the analyses. Once the difference scores were created, Pearson product-moment correlations were conducted to examine whether greater perceptual differences would be associated with the other latent variables included in the study: patients' perceptions of quality of support provision, partners' caregiver burden, and patients' and partners' relational satisfaction, subjective physical health, and psychological distress. Table 4.12 includes the bivariate correlations for patients, while Table 4.13 includes the bivariate correlations for partners.

The results of the correlation analyses suggested that difference scores on the support seeking scale were negatively associated with patients' perceptions of their partners' quality of support provision (r = -.14, p = .03). Therefore, when patients perceived less frequency of support seeking than their partners perceived, these patients were also more likely to report lower quality of support provision from their partners. Additionally, the difference scores were

positively and significantly related to partners' reports of caregiver burden ($r = .28$, $p < .001$). This result suggested that partners were more likely to report higher levels of caregiver burden when they perceived the patients' support seeking to be more frequent than the patients perceived.

A negative relationship was approaching significance between difference scores and patients' subjective physiological health ($r = -.12$, $p = .06$), while a positive association was also detected between the difference scores and patients' relational satisfaction ($r = .15$, $p = .02$). No relationship was found between the difference scores and the patients' psychological distress ($r = .00$, $p = .97$). Therefore, when patients perceived their support seeking to be less frequent than their partners perceived, patients were more likely to report lower subjective physical health and higher relational satisfaction.

Table 4.12

Bivariate Correlations between Perceptual Differences and Patient Outcomes

	Variable	1	2	3	4	5
1	Difference in Support Seeking	1	-.14*	.15*	.00	-.12
2	Quality of Provision		1	.32**	-.09	.60**
3	Relational Satisfaction			1	-.12	.06
4	Psychological Distress				1	-.02
5	Subjective Health					1

Note. * $p < .01$ ** $p < 0.01$

There were no significant associations detected between difference scores and partner relational (r = .05, p = .43) or subjective health outcomes (r = -.08, p = .21). However, there was a positive association between difference scores and partner psychological distress (r = .16, p = .02). Therefore, partners were more likely to report higher levels of psychological distress when patients perceived their frequency of support seeking to be less than the partners' perceptions of the patients' support seeking behavior.

Table 4.13

Bivariate Correlations between Perceptual Differences and Partner Outcomes

	Variable	1	2	3	4	5
1	Difference in Support Seeking	1	.28**	.05	.16**	-.08
2	Caregiver Burden		1	-.07	.49**	-.28**
3	Relational Satisfaction			1	-.20**	-.02
4	Psychological Distress				1	-.05
5	Subjective Health					1

Note. ** $p < 0.01$

Chapter 5: Discussion

REVIEW OF RATIONALE AND PURPOSE

The goal of the current study was to examine supportive communication in the context of rheumatic disorders between both patients and their romantic partners in an effort to understand the nuanced and complex ways in which social support may influence both members' relational, health, and psychological outcomes. This health context is socially meaningful, as an estimated 50 million Americans are living with one of the 100 different diagnoses of rheumatic disorders (American College of Rheumatology, 2017a). These conditions include fibromyalgia, lupus, and rheumatoid arthritis, to name a few. Patients diagnosed with these conditions experience chronic and widespread pain and stiffness along with the presence of other symptoms including sleep deprivation, distress, and cognitive processing issues (Jahan et al., 2012; Phillips & Stuifbergen, 2010). The physical manifestation of the symptoms often prompts a loss in sense of self as the conditions may prevent patients from performing routine tasks in both their personal and professional lives (Söderberg et al.,1999). Moreover, as there are currently no cures available to patients diagnosed with these illnesses (American College of Rheumatology, 2017a; Jahan et al., 2012; Smith, 1998) and patients often turn to their significant others for support when managing these illnesses (Corbin & Strauss, 1985; Manne & Zautra, 1989), examining the ways in which patients and their romantic partners cope with the supportive communication challenges experienced in managing these conditions adds to the literature in this area.

The current study was guided by the theory of illness trajectories (Corbin & Strauss, 1985; 1988), face and politeness theories (Brown & Levinson, 1987; Goffman, 1967) and the stress adaptation model (Lazarus & Folkman, 1984). These frameworks aided in the development of two theoretical structural models exploring the influence of patients' frequency

of support seeking attempts (as perceived by partners) on partners' quality of support provision (as perceived by patients), partners' caregiver burden, and both members' psychosocial outcomes.

The literature has consistently privileged social support as a prosocial form of communication (Vangelisti, 2009). Therefore, prior to the current study questions remained regarding whether support providers experience caregiver burden as a result of being prompted to provide support, or if instead their quality of provision increased in conjunction with the patients' recurring support seeking attempts. As a means of gaining a better understanding of the implications of these variable relationships, the current study tested two models to explain how partners' perceptions of patients' frequency of support seeking, patients' perception of partners' quality of support provision, and partners' caregiver burden predicted both partners' and patients' subsequent psychological, relational and health outcomes**.**

In the section that follows, I will highlight the key findings from the current study. Additionally, I will discuss the modifications made to the hypothesized structural models, and in discussing how the proposed and final structural models differ, I will provide explanations for these findings based on previous research in the social support and chronic illness literatures. The broader goal of this section is to discuss both theoretical contributions to the field as well as pragmatic implications of the findings for patients and their loved ones. Lastly, I will address the limitations of the current study and a future research agenda for scholars interested in examining supportive interactions between romantic partners in chronic illness contexts.

Key Findings from Patient Outcomes Model

Findings related to Contradictory Hypotheses

Hypotheses one and two predicted contradictory relationships between patients' frequency of support seeking (as perceived by partners) and partners' quality of support provision (as perceived by patients). H1 was guided by face and politeness theories (Brown & Levinson, 1987; Goffman, 1967) and predicted that frequency of support seeking would be negatively associated with quality of support provision. This hypothesis was posited based on the notion that support seeking often impedes partners' autonomy which may prompt a decline in quality of support provision in return. H2, on the other hand, was guided by Lazarus and Folkman's (1984) stress adaptation model and predicted a positive association between frequency of support seeking and quality of support provision. The stress adaptation model asserts that romantic partners should learn to adjust their behavior to adequately provide support for the patient after becoming habituated to the stressor over time. Therefore, H2 predicted that partners would provide better quality of support as a result of patients' frequency of support seeking. This was based on the stress adaptation model and the logic that partners may become accustomed to the support provision expected of them by their chronically ill loved ones, that their quality of support provision would increase.

An examination of these two contradictory perspectives was one of the most notable contributions of the current study. The findings from this study's sample supported H1 and suggested a negative association between frequency of support seeking and quality of support provision. In other words, the results suggested that patients were more likely to report increased quality of support provision from their partners in instances when these same partners were reporting decreased frequency of support seeking attempts from the patients.

The findings from the current study may be explained by face and politeness theories, which suggest that individuals who seek recurring social support from relational partners may encroach on that partner's negative face or their goals for autonomy (Brown & Levinson, 1987; Johnson, et al., 2004; Kim, et al., 2009; Wilson, et al., 1998). More specifically, in the context of rheumatic disorders, as patients continue to seek support from their romantic partners, these support providers may feel that their obligation to help their diagnosed loved one is interfering in their daily activities. This finding may lend support for the assertion that this interference in the form of support seeking will likely result in perceptions of lower quality support provision. As partner interference and negative face concerns were not measured as part of the current study, future research should consider exploring these variables as a mechanism for facilitating the relationship between frequency of support activation and quality of support provision.

Further, as a communication scholar, I am primarily interested in examining the communicative behaviors that occur between partners during supportive interactions. Thus, I interpret this finding through the lens of an interpersonal transaction in which patients' support activation and partners' support provision are "reciprocal and ongoing… both in a given situation (conversation or exchange) and over time" (Fruzzetti & Worrall, 2010, p. 126). Conceptualizing supportive interactions in this way suggests that the support seeking enacted by patients influences partners' support provision, and vice versa. These reciprocal interactions are predicted to result in either positive or negative communication patterns over time (Fruzzetti & Worrall, 2010). The findings from the current study indicate that patients' frequency of support seeking negatively influence partners' quality of support provision. However, it is also reasonable to assume that patients who receive inadequate or ineffective support may continue seeking support from their partners until their needs are fulfilled. In fact, previous research has

demonstrated that previous supportive interactions play a role in whether and how support recipients seek help for current stressors (Brock & Lawrence, 2010).

Consequently, future research should examine these supportive transactions between patients and their romantic partners to investigate whether the association between frequency of support seeking and quality of support provision holds true in a longitudinal design. More specifically, researchers should examine the bi-directional nature of this relationship as it stands to reason that patients receiving lower quality support may continue to seek support from their partners until their needs are met. Thus, a spiral of negative interactions may occur wherein the patient seeks support from their partner, the partner provides low-quality support, and in turn, the patient feels compelled to continue seeking support.

Furthermore, scholarship in this area should continue to examine the dyadic effects of this association. For instance, there are implications for both patients and partners based on the negative association between frequency of support seeking leads and quality of support provision. As the current study demonstrated, support providers are often burdened by their partners' recurrent support seeking which leads to lower quality support provision. However, it may also be true that patients are simultaneously experiencing burden as a result of having to continue asking for help from their romantic partners (Wittenburg-Lyles et al., 2013). Therefore, future scholarship should examine the relationships between frequency of support seeking, quality of support provision, and patients' social support burden. Please see Figure 5.1 for a proposed model of these relationships. The figure below asserts that frequency of support seeking is negatively associated with quality of support provision, and in turn, decreased quality of support provision should be associated with an increase in support burden among patients. However, whether the experience of this support burden would prompt patients to continue to

seek support from their romantic partners or whether it would decrease the likelihood of seeking support from them remains to be seen. Thus, this is a fruitful avenue to explore in future research.

Figure 5.1. Proposed Model for Future Research Agenda

Overall, the results supporting H1 add to the social support literature in the context of chronic illness management. Previous research demonstrated that patients diagnosed with rheumatic diseases often report receiving low levels of social support from their relational partners (Schoofs, et al., 2004). The model proposed in the current study lends credibility to the assertion that this may be due to the effortful nature of providing support. Further, the results of the current study provide additional support for extant literature which suggests that the quality of interactions between partners may decrease as a result of recurring support seeking attempts. For example, Stroebe and colleagues (2005) found that social network members tend to be less supportive when widows continue to talk about their bereavement over time.

In chronic illness contexts, previous research has found patients diagnosed with chronic depression often receive negative responses from close relational partners (Gotlib & Robinson, 1982; Gurtman, 1986; Howes & Hokanson, 1979). However, this is the first study to my knowledge that explicitly examined the relationship between couples' perceptions of frequency

of support seeking and the quality of support provision. The findings of H1 provide evidence that patients diagnosed with a chronic rheumatic disorder may experience lower quality support provision from their romantic partners as these partners perceive themselves to be tasked with providing support to their diagnosed loved ones.

Further, post hoc analyses indicated that patients were less likely to report receiving quality support from their partners when they and their partner experienced greater perceptual discrepancies in terms of the frequency with which the patient sought support from their romantic partner. This finding indicates the importance of examining supportive interactions from both members' perspectives. Moreover, these results have large implications for patients as previous research has demonstrated that lower quality support can exacerbate support receivers' experience of distress, diminish their physiological health, and negatively impact their perceptions of relational satisfaction and commitment (Beehr, Bowling, & Bennett, 2010; Figueiredo, Fries, & Ingram, 2004). Future research should continue to explore how these perceptual discrepancies between couples during supportive interactions may influence subsequent communication behaviors and psychosocial outcomes of both partners.

Findings related to Patients' Psychological Distress

H6 predicted a negative association between patients' perceptions of quality of support provision and their psychological distress. Contrary to my prediction based on findings from previous research (Dehle et al., 2001), no significant relationship was detected among these two variables in the patient-outcomes model. This was unexpected as it stands to reason that patients who are receiving inadequate support from their loved ones might concurrently experience increased levels of psychological distress, or that distressed patients may be especially critical of their partners' support attempts. Similarly, RQ7 explored the indirect association of frequency

of support seeking and patients' psychological distress through quality of support provision. Considering the simple path from quality of support provision to psychological distress was not significant, it is not surprising that the compound path was also not significant.

There are a couple of plausible explanations for these insignificant paths. First, I failed to ask patients whether their romantic partners were their primary support providers and whether they preferred for their romantic partners to serve in this role. This is important to the exploration of H6 and RQ7, because patients are likely to experience less psychological distress if they can rely on varied interpersonal resources. Moreover, if these patients do not desire for their romantic partners to be their primary support provider, this would explain the results of the current study.

Additionally, based on the bivariate correlations between the study variables, it seems the variance in patients' psychological distress was attributed primarily to relational and partner variables. For instance, patients' and their partners' psychological distress scores were positively associated. This seems to be in line with the assortative mating literature which suggests that individuals tend to select mates that exhibit similar characteristics (Buss, 1985). Therefore, patients' psychological distress may be at least partially explained by their partners' experience of psychological distress. In addition, partners' caregiver burden was also positively correlated with patients' psychological distress. Therefore, patients may experience psychological distress, because they recognize they are being burdensome to their romantic partners. Lastly, patients' own reports of relational satisfaction were negatively associated with their psychological distress. In other words, this patient sample seemed to experience an increase in depressive symptoms when they could sense their partners' distress or burden or perhaps were told directly by their partners that they were experiencing these difficulties. Furthermore, they experienced

higher levels of distress when they were less satisfied in their relationships. Thus, the relational context seems to be more important to the prediction of psychological distress than the specific supportive communication behaviors measured as part of the current study.

A final explanation of the nonsignificant findings related to patients' psychological distress might be explained by other descriptive data collected as part of the study. A large portion of the patients in the sample indicated their psychological distress either remained consistent (38.00%) or decreased (32.30%) since the time of diagnosis. This is surprising considering scholars often discuss the nature of the relationship between rheumatic disorders and mental health as a bi-directional one (National Institutes of Mental Health, 2005). As such, individuals who are diagnosed with these disorders also tend to report higher levels of depressive symptoms (Phillips & Stuifbergen, 2010). Likewise, depressed individuals also often report experiencing chronic body pain similar to that experienced by patients diagnosed with rheumatic disorders (National Institute of Neurological Disorders and Stroke, 2010). Thus, these symptoms are often predicted to be experienced in tandem.

Although many of the patients reported that their distress declined after being diagnosed, a majority of the patients in the study (n = 134; 58.5%) also reported experiencing distressing symptoms to the extent that, based on the standards provided by previous research (Andrews & Slade, 2001; Kessler et al., 2002), they would be considered likely to have a severe mental disorder. Consequently, perhaps the psychological distress experienced these patients was not a result of the decreased quality of support provision, but rather due to other mental health diagnoses or stressors in their lives.

Findings related to Patients' Relational Satisfaction

H7 predicted that patients' perceptions of their partners' quality of support provision would be significantly and positively associated with patients' relational satisfaction. This direct effect was confirmed in the model; therefore, H7 was supported. These results support previous research which found that spouses' perceived quality of support provision (termed support adequacy) predicted their own marital satisfaction. These findings have been documented in both individual (Dehle et al., 2001) and dyadic samples (Brown & Lawrence, 2010; Lawrence et al., 2008). In the current study, the estimate of the relationship suggests a moderate to large association between partners' quality of support provision (as perceived by patients) and patients' relational satisfaction. Additionally, many patients in the current study reported their relational satisfaction (86%) and commitment (84.7%) both increased after being diagnosed with a form of AORD. Therefore, patients in this study's sample reported experiencing high levels of relational quality, and relational satisfaction scores seem to be elevated for patients who perceive the support provision they receive from their partners to be helpful and effective. However, the quality of support could also be a function of the positive relational climate between the partners. In other words, patients may be more likely to perceive the support they receive from their partners as being better quality if they are more satisfied with their relationship.

Similarly, RQ8 explored the indirect effect of partners' perceptions of patients' frequency of support seeking on patients' relational satisfaction via their perceived quality of support provision from their partners. The model produced by the sample data suggested that frequency of patients' support seeking (as perceived by partners) negatively predicted partners' quality of support provision (as perceived by patients). In turn, quality of support provision was positively associated with patients' relational satisfaction. The indirect effect reported in the current study

seems to support the findings from Overall and colleagues (2010). These authors reported that the relationship between a partner's support behavior and the support recipient's relational satisfaction was mediated by how helpful the support recipient deemed the support behavior to be. Therefore, both patients' perceived quantity and patients' perceived quality of supportive communication seem to be important in predicting relational satisfaction among patients.

During model respecification the modification indices suggested adding another path directly from patients' frequency of support seeking (as measured from partners' perspectives) and patients' relational satisfaction. The direct association between the variables is positive suggesting that as patients' support seeking increases, patients' relational satisfaction is also predicted to increase. This may indicate that patients are more likely to seek support from their romantic partners when they are satisfied in their relationship. However, this finding is curious as frequency of patients' support seeking seems to have both positive and negative implications for patients. For example, the results suggested that patients' perceived frequency of support seeking is positively associated with relational satisfaction, while simultaneously being negatively associated with partners' perceived quality of support provision.

Interestingly, as mentioned above, descriptive data gathered in the current study suggest that the large majority of patients in the sample (86%) perceived their relational satisfaction to have increased after being diagnosed with a form of AORD. Perhaps patients are more satisfied in their relationships when they feel comfortable asking their partners for help in managing their illness – even if this means they may receive lower quality support provision in return. Previous research supports this notion and suggests that patients who hide their concerns from their romantic partners and refrain from seeking support are also likely to report experiencing lower levels of relational satisfaction (Hagedoorn, Kuijer, Buunk, DeJong, Wobbes, & Sanderman,

2000). These results contribute to a more nuanced understanding of both the positive and negative implications of supportive interactions between romantic partners. Future research should continue to explore how enacting support seeking and provision in relationships may influence the members in both positive and negative ways.

Findings related to Patients' Subjective Physiological Health

H8 predicted a positive relationship between quality of support provision and patients' subjective physiological health. The direct path in the current study was significant and large ($\beta = .840$, $p < .001$) indicating that patients' perceptions of their partners' quality of support provision were greatly associated with their subjective ratings of their physical health. Relatedly, RQ9 explored the indirect association between frequency of support seeking and patients' subjective physical health via quality of support provision. The indirect path was significant ($\beta = -.556$, $p = .016$) which supports the mediation model. These results suggest that when partners perceive greater support seeking from patients, patients perceive lower quality support from partners. In turn, as patients' perceived support quality decreases, their subjective health decreases as well. Moreover, post hoc analyses revealed a negative relationship between partners' and patients' perceptual discrepancies regarding frequency of support seeking and patients' subjective health. This suggests that patients are likely to report having lower subjective health when their partners perceive them to be seeking support more frequently than they perceive.

These associations are in line with previous studies which have documented that increased social support positively influences patients' health via increased mortality rates, increased physical functioning, and decreased likelihood of being diagnosed with cancer and infectious diseases (Brummett et al., 2001; Hibbard & Pope; 1993; Lee & Rotheram-Borus,

2001; Pinquart & Duberstein, 2010; Rutledge et al., 2004; Uchino, 2004; 2006; Woloshin, Schwartz, Tosteson, Chang, Wright, Plohman, & Fisher, 1997). Researchers have articulated various mechanisms responsible for the association between social support and physical health. For instance, some scholars argue that social support promotes better medical adherence and healthier behaviors among patients (DiMatteo, 2004; Uchino, 2006). Other scholars have asserted that social support prompts improved moods or emotions, which in turn, influence the physiological outcomes of patients (Thoits, 2011; Uchino, 2006). However, the majority of the studies discussed above have examined social support from the perspective of social integration or perceived available support. Thus, the findings of the current study suggest enacted support also predicts patients' subjective physical health in chronic illness contexts.

Key Findings from Partner Outcomes Model

A primary goal of this investigation was to examine the dyadic effects of supportive communication on both patients' and partners' psychosocial outcomes. The following section will include a discussion of the key findings from the second structural model tested in the study. Therefore, this section emphasizes the relationships between latent study variables and romantic partners' psychological, relational, and health outcomes.

First, RQ1 explored the association between frequency of support seeking and caregiver burden. The results of the path analysis suggest that patients' frequency of support seeking (as perceived by partners) was negatively associated with partners' reports of caregiver burden. The association was large between the variables and indicates that a 1 SD unit increase in perceived frequency of support seeking predicted a .802 SD unit increase in caregiver burden. Additionally, post hoc analyses indicated a positive association between partner and patient difference scores on the frequency of support seeking scales and partners' experience of

caregiver burden. This finding suggests that larger perceptual discrepancies between partners and patients regarding the frequency of support seeking, the more likely those partners will report greater levels of caregiver burden. More specifically, caregiver burden is predicted to increase when patients perceive their frequency of support seeking to be less frequent than partners perceive. These associations provide additional support for Vangelisti's (2009) argument that not all supportive interactions are prosocial in nature. In fact, while recipients may benefit from seeking social support (via increased relational satisfaction), it seems that partners are incurring costs to provide this support to their diagnosed loved ones. Again, these findings lend support for viewing supportive interactions through a transactional lens through which each partner's communicative behaviors have mutual influence on the other.

Although the relationship between patients' frequency of support seeking and partners' caregiver burden has not been previously tested in the literature, the findings of the current study seem to support research in the family caregiving context. For instance, extant literature suggests that caregivers of patients diagnosed with dementia report greater levels of burden when they spent more hours caring for their loved one (Harper & Lund, 1990). This positive association between frequency of providing care (operationalized as number of hours spent helping their ill family member) and burden experienced by caregivers was also confirmed by a meta-analysis of 288 studies (Pinquart & Sörensen, 2003).

Another goal of the current study was to examine the association between caregiver burden and the quality of support provision received by patients. RQ6 explored the association between partners' caregiver burden and patients' perceptions of partners' quality of support provision, and results from the structural model suggest patients' perceptions of partner's quality of support is likely to decrease as partners' caregiver burden increases. Relatedly, RQ2

examined the indirect association between patients' frequency of support seeking (perceived by partners) and partners' quality of support provision (perceived by patients) via partners' caregiver burden. Results suggest frequency of support seeking and caregiver burden were positively associated, such that as partners' perceived patients' frequency of support seeking to increase, their reports of caregiver burden were also expected to increase. This experience of burden, in turn, was negatively associated with quality of support provision. Therefore, increased caregiver burden predicted decreased quality of support provision.

Although this is the first project, to my knowledge, to explicitly test the links between caregiver burden and quality of support provision, the results seem to support previous research in the context of a natural disaster. For instance, Afifi and colleagues (2014) found that social network members found it difficult to continue providing social support to community members when experiencing depleted emotional and tangible resources. Thus, when support providers are experiencing burden (perhaps due to how frequently they are being asked to provide support), the support provision is likely to be of lower quality in return.

It is also important to note that post hoc analyses revealed that perceptual discrepancies between partners and patients regarding the frequency of support sought was positively associated with partners' caregiver burden and negatively associated with partners' quality of support provision (as perceived by the patients). In other words, in couples wherein patients and partners have larger perceptual discrepancies regarding the frequency of support seeking, and more specifically when patients perceive their support seeking to be less frequent than their partners perceive, these partners are more likely to report experiencing caregiver burden while patients are likely to perceive the support provision as being of lower-quality.

Another important consideration to explore is the sample recruited in the current study. This is salient to discuss as the sample will contextualize these findings. Over 76% of the support providers in the current study were women. Sex of the support provider is of concern to these findings as a meta-analysis of 227 studies found that women were more likely to experience increased caregiver burden and depressive symptoms and decreased psychological and physiological health in comparison to their male caregiver counterparts (Pinquart & Sörensen, 2006). Previous research also indicates that women tend to be more adept at communicating at least some forms of support to their partners in comparison to male support providers (MacGeorge, Gillihan, Samter, & Clark, 2003; Samter, 2002). Additionally, extant literature has demonstrated evidence of a support gap wherein women tend to receive less support than their male spouses. Thus, the negative relationship between caregiver burden and quality of support provision may be exacerbated in male support provider samples. Given that most patients diagnosed with AORD are female and their romantic partners/support providers are male (Helmick et al., 2008), the magnitude of this association might be even larger in samples which are more representative of the larger population of AORD patients and their loved ones. Future research should aim to recruit participants who more closely resemble the demographic make-up of these patients and their support providers to improve the generalizability of these findings. Additionally, future scholarship should examine whether sex of the support provider moderates the relationship between perceived frequency of support seeking and caregiver burden.

Taken together, the results of RQ1, RQ2, and RQ6 seem to relate to Corbin & Strauss' (1985; 1993) conceptualization of "work" and the burden patients and their significant others share in managing the various tasks associated with the patients' diagnosis. Additionally, the

results may prove to be counterintuitive to lay persons and patients managing these illnesses. Conventional wisdom would suggest for patients to seek help from their loved ones when they need it. However, the results of the current study suggest that this support seeking becomes burdensome on their support providers and that both partners and patients are likely to experience at least some negative implications as a result. An additional aim of the current study was to propose a model that tested the effects of caregiver burden on partners' relational, psychological, and physiological outcomes. The section which follows will detail the results associated with partners' outcomes in the final structural model.

Findings related to Partners' Psychological Distress

H3 predicted a positive association between partners' reports of caregiver burden and their psychological distress. The results of the path analysis provide support for H3 and indicate as partner reports of caregiver burden increase, partners' psychological distress is also predicted to increase. An indirect association was also identified in the current study between patients' frequency of support seeking (as perceived by partners) and partners' psychological distress via their experience of caregiver burden. These results suggest that as partners perceive the frequency of support seeking to increase, their experience of burden is likely to increase as well. In turn, their psychological distress is also predicted to increase as reports of burden increase.

These findings replicate seminal research which demonstrated that caregivers' experience negative emotions such as anxiety and hostility as a result of their loved one's illness was positively related to the caregivers' distress in the context of dementia (Anthony-Bergstone et al., 1988). More recently, other scholars have reported similar findings as 30% of partners who reported providing care for an ill spouse were more likely to experience depressive symptomology (Kiecolt-Glaser et al., 1991). This association between caregiver burden and

psychological distress has also been replicated in other chronic illness conditions such as post-traumatic stress disorder (Calhoun et al., 2002) and terminal cancer (Grunfeld et al., 2004). Similar to the patients in the sample, the support providers reported that their psychological distress either decreased (37.10%) or remained consistent (31.90%) after the AORD diagnosis. Further, post hoc correlation analyses suggest that patients' and partners' discrepancies in perceptions regarding the frequency of support seeking enacted was positively associated with partners' distress. In other words, when partners and patients disagreed in terms of the amount of support seeking the patient was enacting, and specifically when patients perceived the support seeking to be less frequent than the partners perceived, these partners were more likely to report experiencing psychological distress. Consequently, although the partners reported being moderately burdened by caregiving for their ill loved one, they do not actually perceive the illness to be altering their experience of psychological distress.

Findings related to Partners' Relational Satisfaction

H4 predicted a negative association between partners' caregiver burden and their report of relational satisfaction such that as burden increased, relational satisfaction was predicted to decrease. Contrary to the prediction in H4, no association was detected between caregiver burden and relational satisfaction among partners in the sample. This finding contradicts existing studies which have consistently indicated a negative association between the variables in the context of chronic illnesses and other chronic health problems (Lawrence, et al., 1998; Simonelli, et al., 2008; Steadman et al., 2007).

One explanation for this nonsignificant finding is that the partners included in the current study's sample were highly satisfied (M = 6.34, SD = 0.58), even though they also experienced moderate to high levels of caregiver burden (M = 3.50, SD = .67). In fact, most partners reported

that their relational satisfaction (87.30%) and commitment (86.00%) to their chronically ill loved one increased after the diagnosis. Although this may seem like a curious finding, it makes sense that partners might feel a renewed sense of commitment after an illness diagnosis as leaving an ill partner would be costly and face-threatening. Additionally, the diagnoses may have helped the partners to recognize the illness as a valid experience of the patient. In other words, prior to diagnosis, partners may have attributed patients' inability to operate "normally" to an internal locus of control (i.e., the patient is lazy for not helping around the house). However, after the diagnosis, partners may be more likely to attribute these behaviors to the manifestation of the physical symptoms. Previous research has found some support for this; for instance, caregivers of chronically ill patients were less resentful when they felt their spouses were taking responsibility for their health (Thompson, Medvene, & Freedman, 1995). Thus, it does not seem that partners' relational satisfaction varies as a function of their experience of caregiver burden.

Instead, modification indices suggested adding a direct path from patients' frequency of support seeking (as perceived by partners) to partners' relational satisfaction in the respecification of the model. This significant path suggested a positive association between patients' frequency of support activation and partners' relational satisfaction. One explanation for this association is that despite experiencing burdened as a result of continued support seeking attempts from patients, the partners may experience a sense of satisfaction in being asked for help. In other words, the partners experience increased satisfaction as a result of being able to enact support. This may be explained by the demographic breakdown of the current study's sample. As approximately 77% of the partners surveyed were women, this finding may be interpreted through a gender role lens. Previous research has suggested that women who have high needs for dependency in their relationships also report increased feelings of love for their

partner (Zuroff & Lorimier, 1989). Therefore, these partners may have a need to be needed and may feel fulfilled when they are frequently prompted to provide support to their chronically ill loved ones.

Findings related to Partners' Subjective Physiological Health

H5 predicted a negative association between partners' report of caregiver burden and their subjective physiological health. Results of the structural model indicate support for H5 and suggest a negative relationship between the latent variables. Additionally, results of RQ5 suggest a significant indirect association between patients' frequency of support seeking (as perceived by partners) and partners' subjective physical health through partners' caregiver burden. Thus, the results suggest that as frequency of support seeking increases, partners' experience of caregiver burden is predicted to increase. In turn, as caregiver burden increases, partners' subjective physical health is predicted to decrease. These findings replicate many previous studies which have found that the stress of caregiving is often associated with declined objective and subjective physical health (Pinquart & Sörensen, 2003). Other scholars have argued that these caregivers often have little time to devote to their own physical health when giving care for loved ones (Schulz & Martire, 2004).

THEORETICAL CONTRIBUTIONS

The findings from the current study have both theoretical and practical implications. Theoretically, the project contributes to the scholarly conversation regarding partners' adjustment to recurring support seeking attempts from patients. Whereas extant literature has emphasized the benefits of social support for the patient (i.e., facilitating coping and physiological adjustment to the illness), prior to this study questions remained regarding how support providers experience these demands. The current project included a more complex and

nuanced examination of the challenges associated with supportive interactions in the context of chronic illnesses such as rheumatic disorders. Specifically, the results indicated that support providers experience caregiver burden in conjunction with their perceptions of their diagnosed loved ones' frequency with which they seek support. Furthermore, the findings suggest this perception of support seeking frequency is aligned with the patients' perceptions of the quality of support provision they receive from their romantic partners. Finally, the structural model identified in the current study provides some evidence that these challenging and ongoing supportive interactions have both positive and negative implications for patients' and partners' psychological, relational, and physiological health. These findings demonstrate the value of understanding these chronic illness conditions in a dyadic context through a supportive communication lens.

In addition to providing empirical evidence of the associations discussed above, to my knowledge, this is the first study to quantitatively examine the theory of illness trajectories (Corbin & Strauss, 1985; 1993). Previous research has primarily used the theory as an inductive framework to examine how patients and their loved ones manage the arduous tasks related to chronic illnesses. This study contributes to the existing literature by providing data regarding patients' frequency of seeking support (as perceived by their romantic partners) in terms of the four forms of work and the subsequent influence on partners' quality of support provision (as perceived by patients), caregiver burden, and both relational members' psychosocial and physical outcomes. More specifically, the findings of the current study lend additional credibility to enveloping social support within the construct of "work." In their seminal piece in which they proposed the theory of illness trajectories, Corbin and Strauss (1985; 1988) acknowledged that managing the tasks associated with chronic diagnoses was shared by patients

and significant others alike. Further, Corbin and Strauss (1985) purposely chose the construct label "work" as the authors wanted to convey the demanding nature of managing a chronic condition. Thus, the models proposed and tested in the current study provide evidence that supportive interactions, too, are effortful and complex.

PRACTICAL IMPLICATIONS

Pragmatically, through the current project I aimed to help patients, their romantic partners, and practitioners involved in providing care or support for couples managing these illnesses. As discussed previously, currently no cures are available to patients diagnosed with rheumatic disorders (American College of Rheumatology, 2017a; Jahan et al., 2012; Smith, 1998). Consequently, it is important to examine the ways in which patients and their families cope with the various challenges experienced in managing these life-long illnesses. First, it is my hope that these results create awareness among partners of diagnosed individuals in terms of the form, quantity, and quality of support needed from and expected of them. It is well documented that patients living with chronic illnesses experience distress as a result of managing their symptoms (Phillips & Stuifbergen, 2010). Therefore, it is important for romantic partners to recognize the varied challenges experienced by their diagnosed loved ones and to understand ways in which they may help them. Corbin and Strauss (1985) suggested that patients may need help in managing everyday life work (such as cooking, cleaning, grocery shopping), biographical work (coming to terms with how their illness may affect their identity), and illness-management work (such as picking up medications). Additionally, Donovan-Kicken and colleagues (2012) found that patients may also need help in communicating with others in their social network about their diagnosis and treatment options. A patient who participated in the current study contacted me after completing the study and said their participation actually helped her spouse

realize the lack of support he was providing to her – both in quantity via the types of support he could provide and in quality. This prompted the couple to have a meaningful conversation in which the patient finally felt validated by her partner. As exemplified by this couple, becoming more aware of the various forms of social support the partner could have been providing to the patient led to having a more open conversation regarding the patient's illness experience.

As the couple in the example above has done, patients and their significant others should consider discussing the challenges which accompany support seeking and provision. As chronic illnesses last longer than three months (National Center for Chronic Disease Prevention and Health Promotion, 2012), support recipients should acknowledge the strain and difficulty this creates for the support provider (Doherty & MacGeorge, 2014). It may be helpful for support recipients to discuss the type of support they desire and the expectations for how frequently they need support. Similarly, patients may consider distributing their support seeking to varied interpersonal resources. As the findings of the current study suggest, the more frequently patients ask for help in terms of the four forms of work (illness-related, everyday life, biographical, communication), the more their partners report experiencing caregiver burden. Therefore, patients may opt to seek help from their romantic partners for help with certain aspects of their illness management, but ask support group members or physicians for help in managing the other forms of work as to not overburden one person with multiple support tasks. Similarly, support providers should disclose to their partners if and when they are experiencing burden or exhaustion from enacting their role as a caregiver. These conversations may be helpful in buffering the deleterious effects on both partners' psychological, relational, and health outcomes which were examined in the current study.

Future research should examine options for potential interventions educating patients and partners about the findings from the current study. The intervention would encourage patients to be wary about how frequently they seek support from their romantic partners and to think of others in their social network to whom they can also turn when needing help in managing their rheumatic disorder. The intervention would also encourage romantic partners to be open regarding their experience of burden and would facilitate discussions between both members of the couple regarding the provision of high-quality support. An experimental pre-post design would allow for the examination of the influence of frequency of support seeking on quality of support provision and both partners' psychosocial outcomes. Thus, the ultimate goal of conducting the intervention study would aid in the distribution of these findings to healthcare providers, support group leaders, and mental health professionals.

LIMITATIONS

Although the results of the current study add to our understanding of the complex and dyadic nature of supportive interactions and their effects in the context of chronic rheumatic disorders, it is important to interpret these findings with the limitations of the study in mind.

First, the descriptive and cross-sectional design used in the current study does not allow for causal arguments to be made regarding the nature of the relationships between the latent variables. Most importantly, these methodological choices limited the ability to determine temporal ordering of the variables. This is particularly problematic as some of the relationships between the latent variables may be bidirectional or nonrecursive in nature. For instance, relationship satisfaction between the couples in the sample may predict their perceptions of support seeking and quality of support provision just as much as their support seeking and provision influence their relational satisfaction. Although I attempted to rule out an alternative

model in which partners' relational satisfaction predicted their perceptions of patients' frequency of support seeking, both models fit the data approximately the same. Therefore, the alternative model cannot be dismissed. This provides additional evidence of the bidirectional nature of the variables. Consequently, future research should employ longitudinal designs in order to better understand the nature of these relationships.

Additionally, there were several issues with measurement in the current study. For instance, there were issues of univariate skewness and kurtosis, that even with the aid of linear transformations, were not normally distributed. This may have limited my ability to include some of the variables in the study (i.e., relational commitment), and limited my choices in terms of which items to include in the measurement and structural models. Additionally, there were several issues with the reliability of the scales for the subjective physical health measure in the partner outcomes model. Again, my methodological choices were limited to including a global one-item measure as opposed to a multi-item scale representing these latent variables. Although some scholars argue the use of single-item measures can create threats to validity (Alexandrov, 2010), others have demonstrated that global items are at least as valid as scales including multiple items (Bergkvist & Rossiter, 2009). Further, Fayers and Sprangers (2002) reported that single-item measures of subjective health more accurately measured the construct of interest in comparison to the multi-item constructs when used as outcome variables. Although this lends credibility to the findings of the study, the results related to partners' subjective physical health in the current study should be interpreted with this in mind.

Another limitation of the current study pertains to data collection. First, I did not collect data on several important contextual variables. For instance, I failed to ask patients in the sample if their romantic partner is their primary support provider. Additionally, data was not collected

regarding the length of time since diagnosis. Further, I did not examine whether the associations identified in the current study varied as a function of the specific diagnosis. These are potential confounding variables to the study as patients' and partners' outcomes are likely to be less impacted by these supportive exchanges if the patients are primarily relying on other interpersonal resources for support. Additionally, if patients have been managing their illness for many years, they may require less support from their romantic partners as a result. As arthritis and rheumatic disorders are characterized by diverse symptomology, it is important to explore whether patients diagnosed with various conditions experience these phenomena in different ways.

Further, dyadic analyses of the variables were limited as I only collected data regarding quality of support provision and caregiver burden from one member of the relationship. Including these variables could explain more about the relational processes and would simultaneously allow for statistical control for the other person's scores on the same measures. Most importantly, although the study was framed by face and politeness theories and the stress adaptation model, I did not explicitly measure partners' perceived interference or negative face concerns or partners' and patients' perceptions of partners' adaptation with regard to providing adequate support. Future research should extend the findings of the current study by including these variables of interest in the analyses.

Finally, the sample in the current study was homogenous in terms of their socioeconomic status, education level, and perceptions of relational satisfaction. Although I attempted to survey participants who were struggling with their illnesses (and as a result, might have lower relational satisfaction scores) through my recruitment procedures, the sample was still primarily White, highly educated, and highly satisfied in their relationships. Further, the sample is not

representative of the larger population of patients diagnosed with a form of AORD, which is even more problematic. More specifically, the current sample included a large portion of male patients and their female romantic partners, whereas previous research has reported that males are about 6% less likely to be diagnosed with AORD in older populations and about 20% less likely to be diagnosed with AORD in younger populations (Hemlick et al., 2008). This is extremely problematic as the generalizability of the findings is limited. Researchers should make a concerted effort in future studies to ensure the samples are representative of the patients and partners impacted by these illnesses in the population at large.

FUTURE RESEARCH

The following section will detail several potential future studies which expand on the findings and address the limitations of the current study. First, I suggest replicating the findings of the current study using a longitudinal design with a daily diary methodology. DeLongis and Holtzman (2005) discuss the importance of using daily diary studies to understand specific constructs such as stress, coping, and social support. This methodology, in which scholars collect data from one or both partners of a dyad over time, provides large data sets within which we can examine both the within-subjects' changes over time and the differences between dyads. Additionally, this methodological choice would more precisely examine (albeit cautiously) the causal relationships between variables.

Most importantly, if I were to employ a daily diary method to replicate the findings from this study, I would be able to make an argument about the direction of the relationship between the outcomes in the models and the frequency of support seeking and quality of support provision. Following Merrill and Afifi's (2012) methodology, I could have patients and partners rate their global relational satisfaction at the beginning of and the end of each week of the diary

period. Each day, I could ask dyad members to document their perceptions of how frequently the patients sought support from their romantic partners and how effective the support provision was in return. Collecting data this way would allow me to understand whether those who are already dissatisfied are more likely to engage in lower quality support provision (or lower frequency of support seeking) or if the support seeking and provision interactions are what prompt dissatisfaction among patients and their romantic partners.

In addition to a replication study addressing the limitations discussed above, future research should explore the additional research questions which have arisen as a result of the findings of the current study. First, although the results of the current study suggest that support providers are likely to provide decreased quality of support provision in response to frequency of support seeking, I assert that some providers will be more likely to adapt to these demands, and in turn, will be less likely to experience caregiver burden. Therefore, a research project exploring the various predictors that facilitate adaptation or adjustment to the stressor of having a partner living with a chronic and invisible illness is warranted. Additionally, an important future avenue of research is identifying predictors which may decrease the experience of caregiver burden for support providers. Currently, the literature has largely identified having a large social network and being integrated into the community as indicators for decreased burden. However, future studies should examine other variables of interest (i.e., communication competence, maladaptive/adaptive coping) in relation to caregiver burden. I also hope to examine why some couples thrive in the midst of managing a chronic illness and why others dissolve or are dissatisfying. I believe that social support, resiliency, and coping efficacy are a few of the mechanisms at play, and I hope to continue exploring other communicative strategies and skills that may influence these relationships.

CONCLUSION

Overall, this project contributes to our understanding of supportive interactions within the context of chronic illness management in three primary ways. First, the study's findings provide support for enveloping the construct of social support in Corbin and Strauss' (1985; 1988) theory of illness trajectories. Second, the results of the structural models tested in the current study confirmed one of two contradictory hypotheses regarding the influence of recurring support seeking attempts on the quality of support provision, in return. Lastly, the results of the path analysis provide empirical evidence of the complexities surrounding supportive interactions and answer the call from Vangelisti (2009) to examine both positive and negative implications of supportive communication. Taken together, this study has added to our understanding of social support in the context of rheumatic diseases in both theoretically and practically meaningful ways.

Appendix A – Institutional Review Board Materials

Consent Form

Identification of Investigator and Purpose of Study
You are invited to participate in a research study, entitled "**Social Support in the Context of Rheumatic Disorders**." The study is being conducted by **Kristen Farris, doctoral candidate and Dr. Erin Donovan, Department of Communication Studies** at The University of Texas at Austin, **2504A Whitis Ave. / Austin, TX 78712-0115 / (512) 618-7884 /klfarris@utexas.edu**.

The purpose of this research study is to examine **support between romantic partners in which one member of the dyad has been diagnosed with a rheumatic disorder (i.e., fibromyalgia, lupus, rheumatoid arthritis, etc.). Specifically, the researcher is interested in examining how this support impacts both the patient's and partner's relational, health, and psychological outcomes.** Your participation in the study will contribute to a better understanding of **supportive communication practices surrounding chronic and invisible illnesses.** You are free to contact the investigator at the above address and phone number to discuss the study. You must meet the following criteria to participate in the current study: 1) diagnosis of a rheumatic disorder, 2) be in a cohabiting, romantic relationship, 3) both partners are over the age of 18, and 4) patient's relational partner has no indication of a chronic, invisible illness.

If you agree to participate:

- The **survey questions** will take approximately **20-30 minutes** of your time.
- You will be asked demographic information about age, ethnic background, relational history with your partner, and some personality questions about yourself.
- You will complete other survey items about **your perceptions of your relationship with your partner and your communication surrounding your illness experience.**

Risks/Benefits/Confidentiality of Data
The risks of the current project are no larger than what the participants experience in their daily lives as patients and partners managing these illnesses. Although the project asks individuals about their supportive communication with their loved ones and their subsequent relational, psychological, and health outcomes, the project should not trigger any additional distress than typically accompanies these life experiences. If an unforeseen problem arises, I would encourage you to visit a local support group that serves patients with rheumatic disorders and their families. Your identifying information will not be connected to the data and will be kept completely confidential. There will be no costs for participating, but you will have the opportunity to receive either a $10 gift card OR donate the $10 to a local chapter of one of the following non-profit organizations: National Fibromyalgia Association, Arthritis Foundation, and Lupus Foundation of America.

If it becomes necessary for the Institutional Review Board to review the study records, information that can be linked to you will be protected to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order. The data resulting from your participation may be made available to other researchers in the future for research

purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate it with you, or with your participation in any study.

Participation or Withdrawal
Your participation in this study is voluntary. You may decline to answer any question and you have the right to withdraw from participation at any time. Withdrawal will not affect your relationship with The University of Texas in any way. If you do not want to participate either simply stop participating or close the browser window.

Contacts
This study has been reviewed and approved by The University Institutional Review Board and the study number is 2016020133.

Questions about your rights as a research participant.
If you have questions about your rights or are dissatisfied at any time with any part of this study, you can contact, anonymously if you wish, the Office of Research Support by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

If you agree to participate, please click on the arrow below to begin the study. If you would not like to participate, please close your Internet browser.

Thank you.

Please print a copy of this document for your records.

Email Recruitment Message

Hello,

My name is Kristen Farris, and I am a Doctoral Candidate at the University of Texas at Austin. I am currently recruiting individuals who have been diagnosed with a rheumatic disorder (such as fibromyalgia, lupus, rheumatoid arthritis, etc.) and their romantic partners for a study as part of the fulfillment of my PhD. Specifically, I am interested in supportive communication between patients and their partners and how this influences both partners' psychological, physiological, and relational well-being.

You qualify to participate in this project if you meet the following criteria: 1) diagnosis of a rheumatic disorder, 2) be in a cohabiting, romantic relationship, 3) both partners are over the age of 18, and 4) patient's relational partner has no indication of a chronic, invisible illness. For your participation in the study, you will have the option of either receiving a $10 electronic Amazon gift card OR donating the $10 to one of the following nonprofit organizations: National Fibromyalgia Association, Arthritis Foundation, and Lupus Foundation of America.

Please email me at klfarris@utexas.edu if you and your romantic partner would be willing to contribute to this study.

I greatly appreciate your consideration in helping me to understand the important communication processes that occur during the long-term management of these illnesses. Through my research, I hope to learn how to help both patients and their loved ones cope more effectively with these diagnoses.

Best Regards,
Kristen

Recruitment Flyer for Social Media

COPING AND SOCIAL SUPPORT

Research Study

CURRENTLY RECRUITING COUPLES IN WHICH ONE PERSON HAS BEEN DIAGNOSED WITH

A RHEUMATIC DISORDER

These disorders include: fibromyalgia, rheumatoid arthritis, lupus, and many others

To participate in the online survey, please email:

Ms. Kristen L. Farris
Doctoral Candidate, University of Texas at Austin
klfarris@utexas.edu
512-245-1359

The University of Texas at Austin
Moody College of Communication

Appendix B – Physical Debilitation Measures

Patient's Perspective

Instructions: Please identify the best answer for your abilities over the past week.

0 = Without any difficulty
1 = With some difficulty
2 = With much difficulty
3 = Unable to do

1. Dress yourself, including tying shoelaces and doing buttons
2. Shampoo your hair
3. Stand up from a straight chair
4. Get in and out of bed
5. Cut your meat
6. Lift a full cup or glass to your mouth
7. Open a new milk carton
8. Walk outdoors on flat ground
9. Climb up five steps
10. Wash and dry your body
11. Take a tub bath
12. Get on and off the toilet
13. Reach and get down a 5-pound object (such as a bag of sugar) from above your head
14. Bend down to pick up clothing from the floor
15. Open car doors
16. Open previously opened jars
17. Turn faucets on and off
18. Run errands and shop
19. Get in and out of a car
20. Do chores such as vacuuming or yard work

Patient's Perspective

Instructions: The next section includes a list of statements that describe situations and experiences of some individuals who have been diagnosed with a rheumatic disorder. Read each statement and indicate the number that best describes how much each statement applies to you during the past month, including today.

1 = Not at all
2 = A little
3 = A fair amount
4 = Much
5 = Very much

1. I have difficulty bending or lifting
2. I do not have the energy I used to
3. I have difficulty doing household chores
4. I have difficulty bathing, brushing my teeth, or grooming myself
5. I have difficulty planning activities because of my illness or its treatment
6. My weight has fluctuated because of my illness or its treatment
7. My dietary habits have changed because of my illness or its treatment
8. I find that my illness or its treatment interfere with my ability to do work
9. I frequently have pain
10. I find that my clothes do not fit

Appendix C –Frequency of Support Seeking Measure

Partner's Perceptions

Instructions: When couples are dealing with chronic illnesses such as fibromyalgia, lupus, and rheumatoid arthritis, there may be instances in which the person who has been diagnosed with the illness may ask their spouse/partner for help.
Please consider how frequently your partner has asked you to do these activities for, to, or with her or him.

0 = Never or Rarely
1 = A Little or Some of the Time
2 = Occasionally or a Moderate Amount of Time
3 = Most or All of the Time

My partner asked me to…

Illness Related Work

1. pick up their medication on their behalf.
2. massage their muscles to relieve their pain.
3. help them manage their pain symptoms by engaging in physical exercise or by changing dietary habits with them.
4. do some activity together to get their mind off of the pain.
5. accompany them to healthcare visits.

Biographical Work

1. help them come to terms with their illness.
2. help them to incorporate their illness into their identity.
3. help them see their situation in a new light.
4. help them find something positive about their illness experience.
5. legitimize their feelings about the illness.

Everyday Life Work

1. take over household duties such as cooking, cleaning and doing laundry.
2. take care of paying household expenses.
3. help them by running errands such as grocery shopping for the household.

Communication Work

1. help them by answering questions people have about their illness.
2. help them by looking up information about their illness.
3. help them by updating family and friends about their illness.
4. help them by controlling the flow of information about their illness to others.
5. help them to explain their diagnosis to others.
6. tell them they're OK just the way they are.
7. just listen to them about issues surrounding their illness experience.
8. legitimize their feelings about the illness.

Global Item: How frequently have you been asked for help in managing your loved one's illness in the last week?

Appendix D – Validation of Frequency of Support Seeking Measure

Revised Social Support Scale (Xu & Burleson, 2001)

Partner's Perceptions

Directions: In the context of managing your spouse/partner's chronic illness, your spouse may ask you to do all kinds of different things for you when they need support, but you are probably asked for some of these to a greater or lesser extent. Here, we are interested in how frequently your spouse has sought each behavior from you. Obviously there are no right or wrong answers. For each of the numbered items below, please indicate on the supplied answer sheet how much frequently your spouse has asked you to engage in each behavior. Please use the following scale in responding to each item:

1 = Don't Seek at All
2 = Seek Rarely
3 = Seek Occasionally
4 = Seek Regularly
5 = Seek a Great Deal

Emotional Support Items

1. Ask me to tell them that I love them and feels close to them
2. Ask me to express understanding of a situation that is bothering them, or disclose a similar situation that I experienced before
3. Ask me to comfort them when they are upset by showing some physical affection (including hugs, hand-holding, shoulder patting, etc.)
4. Ask me to promise to keep problems they discuss in confidence
5. Ask me to provide them with hope or confidence
6. Ask me to express sorrow or regret for their situation or distress
7. Ask me to offer attentive comments when they speak

Esteem Support Items

1. Ask me to express esteem or respect for a competency or personal quality of theirs
2. Ask me to tell them that they are still a good person even when they have a problem
3. Ask me to try to reduce their feelings of guilt about a problem situation
4. Ask me to assert that they will have a better future than most people will
5. Ask me to express agreement with their perspective on various situations
6. Ask me to tell them that a lot of people enjoy being with them
7. Ask me to assure them that they are a worthwhile person

Network Support Items

1. Ask me to offer to provide them with access to new companions
2. Ask me to offer to do things with them and have a good time together
3. Ask me to connect them with people whom they may turn to for help
4. Ask me to connect them with people whom they can confide in
5. Ask me to remind them of the availability of companions who share similar interests or experiences with them

6. Ask me to offer to spend time with them to get their mind off something (chatting, having dinner together, going to a concert, etc.)
7. Ask me to help them find the people who can assist them with things

Informational Support Items
1. Ask me to give them advice about what to do
2. Ask me to analyze a situation with them and telling them about available choices and options
3. Ask me to help them understand why they did not do something well
4. Ask me to tell them whom to talk to for help
5. Ask me to give them reasons why they should or should not do something
6. Ask me to teach them how to do something that they don't know how to do
7. Ask me to provide detailed information about the situation or about skills needed to deal with the situation

Tangible Support Items
1. Ask me to offer to lend them something (including money)
2. Ask me to take them to see a doctor when they don't feel well
3. Ask me to take care of their domestic chores when they are feeling ill
4. Ask me to do laundry or cook for them while they are preparing for an important task
5. Ask me to join them in some activity in order to alleviate stress
6. Ask me to express willingness to help them when they are in need of help
7. Ask me to offer to help them do something that needs to be done

Appendix E – Quality of Support Provision Measure

Person-Centeredness Scale (Burleson, 1987; Jones, 2004)

Patient's Perspective

Instructions: Based on the conversation which just took place with your spouse/partner, please rate on the following scale based on your perceptions of YOUR PARTNER'S supportiveness. You will circle the number closer to the adjective that most closely represents your perception of your partner's message.

Self-Centered	1	2	3	4	5	6	7	Other-Centered
Invalidates	1	2	3	4	5	6	7	Validates
Judges	1	2	3	4	5	6	7	Empathizes
Disregards	1	2	3	4	5	6	7	Acknowledges
Unconcerned	1	2	3	4	5	6	7	Concerned

Appendix F – Caregiver Burden Measure

Abbreviated Zarit Burden Interview (Knight, Fox, & Chou, 2000)

Partner's Perspective
Instructions: Please think about your feelings about being a caregiver for your loved one who was diagnosed with dementia or related illness and rate how often you experience the following.

1 = Never
2 = Rarely
3 = Sometimes
4 = Frequently
5 = Always

Embarrassment/Anger

1. I feel embarrassed by my loved one's illness.
2. I feel angry about my loved one's illness.
3. This illness affects my relationships with others.
4. I feel strained by caregiving for my loved one.
5. My health has suffered as a result of my loved one's illness.
6. I don't feel like I have privacy.
7. I feel uncomfortable having friends over because of my loved one's illness.
8. I wish I could leave the care to someone else.

Patient's Dependency

9. I don't have time for myself.
10. My relative is dependent on me.
11. My social life has suffered as a result of my loved one's illness.
12. I have only one relative who depends on me for caregiving.

Self-Criticism

13. I feel like I should be doing more to help care for my loved one.
14. I feel like I could do a better job to help care for my loved one.

Appendix G – Relational Quality Measures

Quality Marriage Index (Norton, 1983)

Patient's and Partner's Perspectives
Instructions: Please think about your relationship with your spouse or partner and use the following scale for items 1 through 5 to rate your perceptions.

1 = Very Strong Disagreement
2 = Moderate Disagreement
3 = Slight Disagreement
4 = Neutral
5 = Slight Agreement
6 = Moderate Agreement
7 = Very Strong Agreement

1. We have a good marriage.
2. My relationship with my partner is very stable.
3. Our marriage is strong.
4. My relationship with my partner makes me happy.
5. I really feel like part of a team with my partner.

Instructions: For item 6, indicate how happy you are by using the following scale.

6. The degree of happiness, everything considered, in your marriage.

Very Unhappy 1 2 3 4 5 6 7 8 9 10 Perfectly Happy

Revised Relational Commitment Scale (Stafford & Canary, 1991)

Patient's and Partner's Perspectives

Instructions: Please indicate the degree to which you agree with the following statements by marking one of the following:

7 = Strongly Agree
6 = Agree
5 = Moderately Agree
4 = Are Undecided
3 = Moderately Disagree
2 = Disagree
1 = Strongly Disagree

1. I want this relationship to last as long as possible.
2. I am committed to maintaining this relationship.
3. It is unlikely that this relationship will end in the near future.
4. There are no others I want to get to know romantically.
5. I do not want another romantic partner.

Appendix H – Psychological Distress Measure

Kessler (K10) Psychological Distress Scale

Patient's and Partner's Perspectives
Instructions: Please identify how often (in the last 30 days), you felt the following by indicating on the scale:

0 = None of the Time
1 = A Little of the Time
2 = Some of the Time
3 = Most of the Time
4 = All of the Time

1. Did you feel tired out for no good reason?
2. Did you feel nervous?
3. Did you feel so nervous that nothing could calm you down?
4. Did you feel hopeless?
5. Did you feel restless or fidgety?
6. Did you feel so restless that you could not sit still?
7. Did you feel depressed?
8. Did you feel that everything was an effort?
9. Did you feel so sad that nothing could cheer you up?
10. Did you feel worthless?

Appendix I – Perceived Physical Health Measure

Medical Outcomes Study Short-Form Subjective Health Scale

Patient's and Partner's Perspectives

Instructions: Please rate your perceived global health using the scale below.

1. In general would you say your health is:
   1 = Excellent
   2 = Very Good
   3 = Good
   4 = Fair
   5 = Poor

Instructions: Please rate how TRUE or FALSE each of the following statements is for you.

1 = Definitely True
2 = Mostly True
3 = Don't Know
4 = Mostly False
5 = Definitely False

2. I seem to get sick a little easier than other people.
3. I am as healthy as anybody I know.
4. I expect my health to get worse.
5. My health is excellent.

Instructions: Please rate your perceived health using the scale and example below.

6. To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?

   1 = Completely
   2 = Mostly
   3 = Moderately
   4 = A Little
   5 = Not at All

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